

# **Exhibit 7**

## **2023 Flight Inventory Memo for Triple B Complex**

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## M E M O R A N D U M

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To: Sadie Leyba, Brianna Brodowski, Ben Noyes, Bruce Thompson (BLM)  
 CC: Ruth Thompson, Paul Griffin, Scott Fluor, Hollè Waddell (BLM)  
 From: Michelle Crabb (BLM) WHB Program Population Biologist  
 Date: 11/07/2023  
 RE: Statistical analysis for 2023 survey of wild horses in Cherry Springs WHT, and Triple B, Maverick-Medicine, and Antelope Valley HMAs, NV

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### Summary Table

Survey Areas and Dates	Start date	End date	Area name	Area ID
	5/15/2023	5/15/2023	Cherry Springs WHT	
	5/15/2023	5/18/2023	Triple B HMA	NV0417
	5/17/2023	5/18/2023	Maverick-Medicine HMA	NV0105
	5/18/2023	5/18/2023	Antelope Vally HMA (West Portion)	NV0107
Survey Type	Simultaneous double-observer			
Aviation Details	Pilot: Keegan Bolton, Reeder Flying Service, Helicopter: Astar, #N353E			
Agency Personnel	Observers: Bruce Thompson, Sadie Leyba, Brianna Brodowski (BLM) Helicopter manager: Bruce Thompson (BLM)			

### Summary Narrative

In May 2023 Bureau of Land Management (BLM) personnel conducted simultaneous double-observer aerial surveys of the wild horse abundance in the Cherry Springs WHT, and Triple B, Maverick-Medicine, and Antelope Vally (western portion only) HMAs, NV. This area is referred to as the Triple B complex. Surveys were conducted using methods recommended by BLM policy (BLM 2010) and the National Academy of Sciences (NRC 2013) with detailed methods described in Griffin et al. (2020). Data were analyzed using methods in Ekernas and Lubow (2019) to estimate sighting probabilities for horses, with sighting probabilities then used to correct the raw counts for systematic biases (undercounts) that are known to occur in aerial surveys (Lubow and Ransom 2016), and to provide confidence intervals (which are measures of uncertainty) associated with the abundance estimates. Estimated wild horse abundance in each area is listed in Table 1, below.

**Table 1.** Estimated abundance (Estimate No. Horses) is for the number of horses in the surveyed areas at the time of survey. 90% confidence intervals are shown in terms of the lower limit (LCL) and upper limit (UCL). The coefficient of variation (CV) is a measure of precision; it is the standard error as a percentage of the estimated population. Number of horses seen (No. Horses Seen) leads to the estimated percentage of horses that were present in the surveyed area, but that were not recorded by any observer (Estimated % Missed). The estimated number of horses associated with each HMA but located outside the HMA boundaries (Est. No. Horses Outside HMA) is already included in the total estimate for that HMA.

Area	Age Class	Estimated No. Horses	LCL <sup>a</sup>	UCL	Std Err	CV	No. Horses Seen	Estimated % Missed	Estimated No. Groups	Estimated Group Size	Foals Per 100 Adults <sup>b</sup>	Est. No. Horses Outside HMA
Cherry Springs WHT	Total	13	12	20	3.6	28.0%	12	7.7%	2	6.5	8.3	7
	Foals	1	1	2	0.4	44.7%	1					
	Adults	12	11	19	3.3	27.7%	11					
Triple B HMA	Total	1,409	1,300	1,752	144.9	10.3%	1,207	14.3%	290	4.9	6.8	32
	Foals	90	79	135	17.6	19.6%	75					
	Adults	1,320	1,218	1,614	129.4	9.8%	1,132					
Maverick-Medicine HMA	Total	925	866	1,119	82	8.9%	827	10.6%	180	5.1	6.4	98
	Foals	56	52	76	6.8	12.1%	52					
	Adults	869	813	1,042	76.7	8.8%	775					
Antelope Vally HMA (West Portion)	Total	10	10	12	0.9	8.7%	10	0%	3	3.3	11.1	0
	Foals	1	1	1	0	0.2%	1					
	Adults	9	9	11	0.9	9.7%	9					
Triple B Complex	Total	2,357	2,216	2,797	201.6	8.6%	2,056	12.8%	475	5.0	6.7	137
	Foals	148	135	199	20.3	13.7%	129					
	Adults	2,210	2,079	2,604	183.8	8.3%	1,927					

<sup>a</sup> The lower 90% confidence limit is based on bootstrap simulation results or the number of horses seen, whichever is higher.

<sup>b</sup> The estimated ratio of Foals to adults reflects what was observed during this May survey and does not represent the full cohort of foals for this year.

## Abundance Results

The estimated total horse abundance within the surveyed areas is reported in Table 1. Observers recorded 391 horse groups, of which 372 horse groups had data recorded properly 'on protocol' and that could be used to compute statistical estimates of sighting probability. All 391 groups observed were used to calculate the abundance estimates. Any horse groups that were seen on two separate occasions (i.e., double counted), or that were identified as domestic and privately owned, were not used to calculate abundance; however, such groups can be used to parameterize sighting probability if they were recorded on protocol. Coefficient of variation (Table 1) values of less than 10% indicate high precision resulting from high detection probabilities; values between 10-20% indicate medium precision resulting from lower detection probabilities; and values greater than 20% indicate low precision resulting from very low detection probabilities.

The mean estimated size of detected horse groups, after correcting for missed groups, was 5.0 horses/group across the surveyed area, with a median of 4.0 horses/group. There were an estimated 6.7 foals per 100 adult horses at the time of these surveys (Table 1). Surveys flown before July are unlikely to include all foals born this year, while surveys flown during or after July would not include foals that were born this year but died before the survey.

## Sighting Probability Results

The combined observers saw 71.2% of the horse groups (75.9% of the horses) seen by any observer, whereas the back seat observers saw 81.2% of all horse groups (87.5% of horses) seen (Table 2). At least one observer (front or back) missed 47.6% of horse groups seen by the other. These results demonstrate that simple raw counts do not fully reflect the true abundance without statistical corrections for missed groups, made possible by the double observer method and reported here. Direct counts from aerial surveys underestimate true abundance because some animals are missed by all observers; this analysis corrects for that bias (Lubow and Ransom 2016). The analysis method used for the surveyed areas was based on simultaneous double-observer data collected during these surveys.

The sample size of observations following protocol was 372 horse groups. Survey datasets with sample size less than 20 groups cannot be analyzed using these methods; sample sizes of 20 to 40 groups are considered low and have high risk of containing unmodeled heterogeneity in sighting probability; sample sizes of 41-100 groups are moderate and can estimate effects of many but likely not all potential sightability covariates; and sample sizes >100 groups are large and can account for most sightability covariates.

In an attempt to reduce some of the previously unmodeled heterogeneity in detection probability we recorded an additional covariate related to the complexity of the background environment the group was first spotted on. The background covariate (visual noise) had three levels; simple, moderate, or complex.

All models used in the double-observer analysis contained an estimated intercept common to all observers. Informed by *a priori* reasoning and preliminary analyses showing overwhelming support, I also included an additional parameter in all models for effect of: (1) horse group size;

(2) distance of horses from the flight path; (3) complex background (4); backseat observers; and (5) observations by front-seat observer on the pilots side. I evaluated 6 other possible effects on sighting probability by fitting models for all possible combinations with and without the following additional effects, resulting in 64 alternative models. The 6 effects examined were: (1) group activity; (2) percent vegetation cover; (3) vegetation composition; (4) moderate background; (5) high lighting conditions; (6) individual backseat observer. I did not consider effects on detection probability of snow cover or rugged terrain, due to insufficient variation in the values of these covariates. Covariates and their relative effect on sighting probability are shown in Table 3.

There was strong support for an effect of moderately complex background (97.4% of AICc model weight), and activity (69.0%), and moderate support for high lighting conditions (32.1%), and weak support for the effect of individual backseat observers (28.2%), percent vegetation cover (27.1%), and tree/broken vegetation composition (26.8%). As expected, visibility was higher for horse groups that were larger, moving, in highlighting conditions, and lower for groups on the pilot side, those further from the transect, and on moderate, or complex backgrounds (Table 3). Unexpectedly, visibility was slightly higher for horse groups that were in more vegetation cover, and in tree/shrub vegetation composition, although there was weak support for both of those covariates (Table 3).

Groups that were recorded on the centerline, directly under the aircraft, were not available to backseat observers. For these groups, backseat observers' sighting probability was therefore set to 0. Sighting probability for groups visible on both sides of the aircraft was computed based on the assumption that both backseat observers could have independently seen them, thereby increasing total detection probability for these groups relative to groups available to only one side of the helicopter.

Estimated overall sighting probabilities,  $\hat{p}$ , for the combined observers ranged across horse from 0.21-1.00. Sighting probability was  $<0.7$  for 50 (13%), and  $<0.5$  for 15 (4%) of observed groups. In aggregate across all observed groups, the overall "correction factor" that was added on to the total number of wild horses *seen* was 14.6%. That is to say: 2,056 horses were seen, and adding another 14.6% of that number seen equals the total estimate of 2,357 horses (Table 1). A different but mathematically equivalent interpretation is listed in Table 1 in the "Estimated % Missed" column, which shows that, overall, 12.8% of the horses that were estimated to be present during the survey were *never seen* by any of the observers (Table 1).

### Assumptions and Caveats

Results from this double observer analysis are a conservative estimate of abundance. True abundance values are likely to be higher, not lower, than abundance estimates in Table 1 because of several potential sources of bias listed below. Results should always be interpreted with a clear understanding of the assumptions and implications.

1. The results obtained from these surveys are estimates of the horses present in the surveyed area at the time of the survey and should not be used to make inferences beyond this context.

Abundance values reported here may vary from the annual March 1 population estimates for the HMAs; aerial survey data are just one component of all the available information that BLM uses to make March 1 population estimates. Aerial surveys only provide information about the area surveyed at the time of the survey, and do not account for births, deaths, movements, or any management removals that may have taken place afterwards.

2. Simultaneous double-observer analyses cannot account for undocumented animal movement between, within, or outside of the surveyed area. Fences and topographic barriers can provide deterrents to animal movement, but even these barriers may not present continuous, unbroken, or impenetrable barriers. It is possible that the surveys did not extend as far beyond a boundary as horses might move. Consequently, there is the possibility that temporary emigration from the surveyed area may have contributed to some animals that are normally resident having not being present at the time of survey. In principle, if the level of such movement were high, then the number of animals found within the survey area at another time could differ substantially. If there were any wild horses that are part of a local herd but were outside the surveyed areas, then Table 1 underestimates true abundance.

3. The validity of the analysis rests on the assumption that all groups of animals are flown over once during a survey period, and thus have exactly one chance to be counted by the front and back seat observers, or that groups flown over more than once are identified and considered only once in the analysis. Animal movements during a survey can potentially bias results if those movements result in unintentional over- or under-counting of horses. Groups counted more than once would constitute ‘double counting,’ which would lead to estimates that are biased higher than the true number of groups present. Groups that were never available to be seen (for example due to temporary emigration out of the study area or undetected movement from an unsurveyed area to an already-surveyed area) can lead to estimates that are negatively biased compared to the true abundance.

Survey SOPs (Griffin et al. 2020) call for observers to identify and record ‘marker’ animals (with unusual coloration) on paper, and variation in group sizes helps reduce the risk of double counting during aerial surveys. Observers are also to take photographs of many observed groups and use those photos after landing to identify any groups that might have been inadvertently recorded twice. Unfortunately, there is no effective way to correct for the converse problem of horses fleeing and thus never having the opportunity for being detected. Because observers can account for horse movements leading to double counting, but cannot account for movement causing horses to never be observed, animal movements can contribute to the estimated abundance (Table 1) potentially being lower than true abundance.

4. The simultaneous double-observer method assumes that all horse groups with identical sighting covariate values have equal sighting probability. If there is additional variability in sighting probability not accounted for in the sighting models, such heterogeneity could lead to a negative bias (underestimate) of abundance. In other words, under most conditions the double-observer method underestimates abundance.

5. The analysis assumes that the number of animals in each group is counted accurately. Standard Operating Procedures (Griffin et al. 2020) specify that all groups with more than 20

animals are photographed and photos scrutinized after the flight to correct counts. Smaller groups, particularly ones with poor sighting conditions such as heavy tree cover, could also be undercounted. Any such undercounting would lead to biased estimates of abundance.

### Evaluation of Survey and Recommendations

It appears that survey protocols were followed well and with enough consistency among survey flights to enable useful pooling of data for more precise estimates of sighting probability. Visibility conditions were very good for the four survey days, except for one flight on the second day of the survey when it was only fair.

The survey seemed to cover all parts of the HMAs and extended beyond the HMA boundaries in a number of places, particularly to the north (Figure 1). Where the survey covered areas outside of the HMA, horses were still sometimes observed near the edge of the extended survey area. There are no obvious natural deterrents to horse movements that would contain them within the boundaries of the survey area, fencing in that area may provide restriction to movement (although fencing, were present, is generally not an impenetrable barrier to horse movement). Consequently, it is difficult to be sure there were no additional horses outside of the HMAs in areas not surveyed and results should be understood to represent the horses present only in the area surveyed, which may not represent all horses that occasionally occupy this area. Careful consideration should be given to where horses were located near the edge of the area surveyed when planning whether to extend the survey area further in future surveys to ensure covering all areas potentially occupied by horses associated with the HMAs, or to confirm that the current survey boundaries do cover the full extent of horses' range in this area.

**Table 2.** Tally of raw counts of horses and horse groups by observer (front, back, and both) for the Triple B Complex, NV, surveyed in May 2023.

Observer	Groups seen <sup>a</sup> (raw count)	Horses seen <sup>a</sup> (raw count)	Actual sighting rate <sup>b</sup> (groups)	Actual sighting rate <sup>b</sup> (horses)
Front	265	1,445	71.2%	75.9%
Back	302	1,665	81.2%	87.5%
Both	195	1,207	52.4%	63.4%
Combined	372	1,903		

<sup>a</sup> Includes only groups and horses where protocol was followed.

<sup>b</sup> Percentage of all groups seen that were seen by each observer.

**Table 3.** Effect of observers and sighting condition covariates on estimated sighting probability of horse groups for both front and rear observers during the May 2023 survey of the Triple B Complex, NV. Baseline case (bold) for horses presents the predicted sighting probability for a group of 4 horses (the median group size observed), that are <1/4 mile from the transect, not moving, in the open, not in highlight, in zero percent vegetation cover, in simple background environment, not on the pilot side, and with the average back-seat observer. Other example cases vary a covariate or observer, one effect at time, as indicated in the left-most column, to illustrate the relative magnitude of each effect. Sighting probabilities for each row should be compared to the baseline (first row) to see the effect of the change in each observer or condition. Baseline values are shown in bold wherever they occur. Sighting probabilities are weighted averages across all 64 models considered (Burnham and Anderson 2002).

	Sighting probability		
	Front Observer <sup>a</sup>	Back Observer <sup>b</sup>	Combined Observers
Baseline	<b>79.4%</b>	<b>81.2%</b>	96.1%
Effect of Group size (N=1)	64.9%	67.4%	88.6%
Effect of Group size (N=10)	94.4%	94.9%	99.7%
Effect of Distance = 0.375	59.2%	61.9%	84.5%
Effect of Moving	84.1%	85.6%	97.7%
Effect of Trees	79.8%	81.5%	96.3%
Effect of Highlight	80.5%	82.2%	96.5%
Effect of Veg 30%	79.5%	81.3%	96.2%
Effect of Veg 60%	79.6%	81.3%	96.2%
Effect of Moderate Background	62.1%	64.7%	86.6%
Effect of Complex Background	12.8%	14.1%	25.1%
Effect of PilotSide	61.7%	<b>81.2%</b>	92.8%
Effect of Observer BB	<b>79.4%</b>	81.8%	96.3%
Effect of back=front	<b>79.4%</b>	79.4%	95.8%

<sup>a</sup> Sighting probability for the front observers acting as a team, regardless of which of the front observers saw the horses first.

<sup>b</sup> Sighting probabilities for back observers for horse groups that are potentially visible on the same side of the aircraft as the observer. Sighting probability in the back is 0 for groups on the opposite side or centerline.



## **Literature Cited**

Bureau of Land Management. 2010. Wild horse and burro population inventory and estimation: Bureau of Land Management Instructional Memorandum No. 2010-057. 4 p.

Burnham, K., and D. R. Anderson. 2002. Model Selection and Multimodel Inference: A Practical Information-Theoretic Approach. Springer-Verlag, New York, New York.

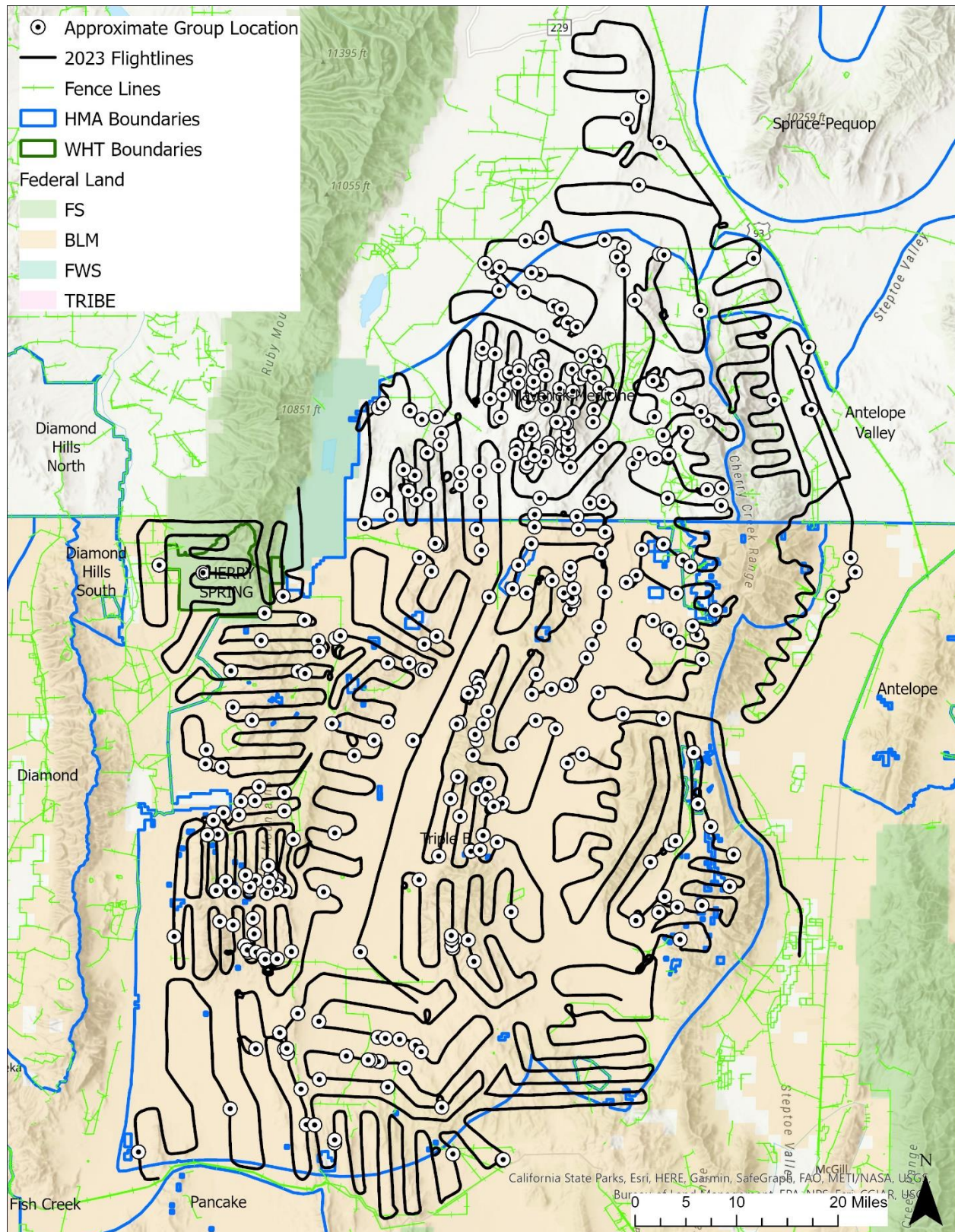
Ekernas, L. S., and B. C. Lubow. 2019. R script to analyze wild horse and burro double-observer aerial surveys. USGS Software Release.

Griffin, P. C., L.S. Ekernas, K.A. Schoenecker, and B. C. Lubow. 2020. Standard Operating Procedures for wild horse and burro double-observer aerial surveys. U.S. Geological Survey Techniques and Methods, book 2, chap. A16, 76 p., <https://doi.org/10.3133/tm2A16>.

Lubow, B. C., and J. I. Ransom. 2016. Practical bias correction in aerial surveys of large mammals: validation of hybrid double-observer with sightability method against known abundance of feral horse (*Equus caballus*) populations. PLoS-ONE 11(5):e0154902. doi:10.1371/journal.pone.0154902.

National Research Council. 2013. Using Science to Improve the BLM Wild Horse and Burro Program. The National Academies Press. Washington, D.C.

**Figure 1.** Map of 2023 Triple B Complex, NV, survey tracks flown (black lines), approximate locations of observed horse groups (black and white circles), HMA boundaries (blue), WHT boundaries (green).



# **Exhibit 8**

Government Accountability Office report on  
BLM Wild Horse & Burro Program (2008) -  
excerpt

United States Government Accountability Office

GAO

Report to the Chairman, Committee on  
Natural Resources, House of  
Representatives

October 2008

# BUREAU OF LAND MANAGEMENT

## Effective Long-Term Options Needed to Manage Unadoptable Wild Horses



G A O

Accountability \* Integrity \* Reliability



October 2008



Highlights of [GAO-09-77](#), a report to the Chairman, Committee on Natural Resources, House of Representatives

## Why GAO Did This Study

The Department of the Interior's Bureau of Land Management (BLM) manages about 33,100 wild horses and burros on 199 Herd Management Areas (HMA) in 10 western states. Under the Wild Free-Roaming Horses and Burros Act of 1971, as amended, BLM is to protect wild horses and burros, set appropriate management levels (AML), maintain current inventory counts, and remove excess animals to prevent overpopulation and rangeland damage. Over the years, various stakeholders have raised issues about BLM's management of the animals on and off the range.

GAO examined (1) BLM's progress in setting and meeting AML; (2) BLM's management of animals off the range through adoptions, sales, and holding facilities; (3) BLM's controls to help ensure the humane treatment of animals; and (4) what challenges, if any, BLM faces in managing for the long-term sustainability of the program. GAO surveyed and analyzed documents from 26 of the 44 BLM offices that manage wild horses and burros.

## What GAO Recommends

To improve the program, GAO is recommending, among other things, that BLM establish a formal policy for setting AML, develop alternatives for long-term holding facilities, and initiate a discussion with Congress and other stakeholders on how best to comply with the act, as amended. The Department of the Interior concurred with GAO's findings and recommendations.

To view the full product, including the scope and methodology, click on [GAO-09-77](#). For more information, contact Robin M. Nazzaro at (202) 512-3841 or [nazzaror@gao.gov](mailto:nazzaror@gao.gov).

## BUREAU OF LAND MANAGEMENT

### Effective Long-Term Options Needed to Manage Unadoptable Wild Horses

## What GAO Found

BLM has made significant progress toward setting and meeting AML (the optimum number of animals which results in a thriving natural ecological balance and avoids range deterioration). BLM has set AML for 197 out of 199 HMAs. Most of the field offices GAO surveyed considered similar factors in determining AML, such as rangeland conditions; however, BLM has not provided specific formal guidance to the field offices on how to set AML. Without clear guidance, BLM cannot ensure that the factors considered in future AML revisions will be consistent across HMAs. At a national level, in 2007, BLM was closer to meeting AML (about 27,200 animals) than in any other year since AMLs were first reported in 1984. The extent to which BLM has actually met AML depends on the accuracy of BLM's population counts. Nineteen of the 26 field officials GAO surveyed used a counting method which, researchers say, consistently undercounts animals and does not provide a statistical range of population estimates. Undercounting can put animals at risk and lead to increased program costs.

The number of animals removed from the range is far greater than the number adopted or sold, which has resulted in the need for increased short-term and long-term holding. Since 2001, over 74,000 animals have been removed from the range, while only about 46,400 have been adopted or sold. Thirty-six percent fewer animals were adopted in 2007 than compared to the average adoption rates in the 1990s. As of June 2008, BLM was holding 30,088 animals in holding facilities, up from 9,807 in 2001. To accommodate the increased removals and declining adoptions and sales, BLM has increased the number of short-term and long-term holding facilities.

BLM has implemented multiple controls to help ensure humane treatment, including random checks on adopted horses and agreements with adopters and buyers to prevent slaughter. Although BLM state offices collect data on the treatment of the animals, BLM does not always compile the information in its central database or report it to the public. Providing additional information to the public on the treatment of these animals could help inform the public about their treatment and improve transparency.

The long-term sustainability of BLM's Wild Horse and Burro Program depends on the resolution of two significant challenges:

- *If not controlled, off-the-range holding costs will continue to overwhelm the program.* The percentage of the program's direct costs for holding animals off the range increased from \$7 million in 2000 (46 percent) to \$21 million in 2007 (67 percent). In 2008, these costs could account for 74 percent of the program's budget.
- *BLM has limited options for dealing with unadoptable animals.* The act provides that unadopted excess animals shall be humanely destroyed or, under certain circumstances, sold without limitation. However, BLM only manages these animals through sales with limitations. BLM is concerned about the possible reaction to the destruction of healthy animals.

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long-term holding as a solution to managing horses removed from the range due to the large costs.<sup>43</sup> BLM continues to look for more facilities but faces difficulty attracting new contractors that can sustain a large number of animals and that will accept the fee BLM offers, compared to perhaps more profitable land uses.

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## BLM Has Controls in Place to Help Ensure the Humane Treatment of Wild Horses and Burros, but It Could Better Track and Report These Data to the Public

BLM has implemented multiple controls to help ensure the humane treatment of wild horses and burros, including standard operating procedures and agreements with all three slaughterhouses in the United States before they closed in 2007. A variety of controls are used at various stages in the management of wild horses and burros, including for those animals that are gathered, in short-term holding facilities, in long-term holding facilities, adopted, or sold. BLM's controls for gathers include standard operating procedures, inspections, and data collection. While BLM state offices collect detailed data on animals that die during gathers, the information is not compiled by BLM headquarters in its centralized database, nor is it reported to the public. In addition, BLM does not regularly provide the information it tracks on the treatment of animals in short- and long-term holding and adoption inspections to the public. Making more of this data available to the public may help inform them about the treatment of the animals and improve transparency. Beginning in 1998, until the last horse slaughterhouse in the United States shut down in 2007, BLM sought agreements with all three slaughter facilities to alert BLM of wild horses that entered their facilities. According to BLM data, since 2002, about 2,000 wild horses whose legal titles were obtained by private citizens either through adoption or purchase were slaughtered. During that same period, another 90 wild horses whose title still belonged to BLM were retrieved from slaughterhouses by BLM and by wild horse groups. We reviewed the basic controls BLM has in place, but we did not evaluate their effectiveness. While BLM is required to implement controls to help ensure the humane treatment of wild horses and burros, such

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<sup>43</sup>U.S. Department of the Interior, Office of Inspector General, *Selected Aspects of the Wild Horse and Burro Program* (Washington, D.C., May 1994).

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controls cannot provide absolute assurance that all agency objectives will be met.<sup>44</sup>

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## BLM Internal Controls Help Ensure Humane Treatment, but BLM Could Improve Data Gathering and Reporting in Some Areas

A variety of controls are used at various stages in the management of wild horses and burros, including for those animals that are gathered, in short-term holding facilities, in long-term holding facilities, adopted, or sold. BLM's controls for gathers include standard operating procedures, inspections, and data collection. Data collected from 6 of the 10 states from fiscal years 2005 through 2007 indicate that mortality as a result of gathers is about 1.2 percent. Similarly, controls for short- and long-term holding include standard operating procedures, inspections, and data collection. BLM did not report any deaths due to neglect or abuse at holding facilities, aside from one animal that was repossessed by BLM after having been abused by an adopter. BLM has controls over the adoption of wild horses and burros, and data indicate that from 2005 to 2007, about 9 percent of adopters were not in compliance with BLM's standards of care. BLM's controls over humane treatment primarily apply to horses and burros before ownership is passed to private individuals, but BLM has also implemented some controls to protect horses and burros once ownership passes, such as when wild horses and burros are sold. For animals that are sold, since spring 2005, BLM has required buyers to sign a statement that they do not intend to slaughter the animals. BLM does not consistently track information on treatment during gather operations through a central database, nor does it report information about the treatment of animals during gathers, holding, or adoption inspections to the public.

## Gathers

BLM has established controls, such as standard operating procedures and tracking systems, to help ensure humane treatment during gather operations. BLM hires contractors to remove wild horses and burros from the range. These contractors generally use helicopters to herd the animals into capture pens on the range (see fig. 8).

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<sup>44</sup>Standards for internal control in the federal government describe internal controls as "a series of actions and activities that occur throughout an [agency's] operations and on an ongoing basis" used "to regulate and guide [the agency's] operations." See GAO, *Standards for Internal Control in the Federal Government*, [GAO/AIMD-00-21.3.1](#) (Washington, D.C.: November 1999).

**Figure 8: Helicopter Used to Gather Wild Horses Near Ely, Nevada, c. 2006**

Source: BLM.

Due to the stress caused to wild animals by gathering them into pens, gather operations have the potential to cause harm to wild horses and burros, such as nervous agitation; conflict between captured animals; or more rarely, animal death. Because of the potential for harm and to help ensure the safe and humane handling of all animals captured, BLM has implemented a range of standard operating procedures for its gather contractors. Prior to the start of gather operations, BLM personnel evaluate the site of the gather to determine whether it is suitable based on environmental and safety concerns. They also approve gather facility plans ensuring, among other things, that they do not present puncture or laceration hazards and that they prevent animals from seeing humans, vehicles, and other perceived threats. During the herding of the animals, BLM sets limitations on the distance and speed the animals will travel, depending on the condition of the animals and other factors. As the animals are herded into the gather site, BLM requires contractors to segregate horses by age and sex to reduce the possibility of conflict and to ensure that very young horses and burros are not left behind to fend for themselves on the range. Finally, as the captured animals are transported from the gather site to short-term holding facilities, contractors are required to follow procedures to ensure animal safety, such as using adequately sized motorized equipment that has been inspected for safety. BLM has managed gathers with standard operating procedures since the passage of the act in 1971.



Although BLM's controls are designed to enhance the safety of wild horses and burros during gather operations, some animals are accidentally killed in the course of gathers or are euthanized because of ill health or prior injury. Six of the 10 BLM state offices reported data about the number of animals that die as a result of their gather operations. Data collected from 6 of the 10 states from fiscal years 2005 through 2007 indicate that, of the 24,855 animals removed from these states during this period, about 1.2 percent were either euthanized or died accidentally (see table 13). Horses and burros sometimes die due to accidents during gather operations on the range or after they are brought to the holding pens. For example, wild horses will sometimes panic and break their necks against capture pens. Animals found with conditions that make it unlikely they will be able to live their life without significant pain, such as lameness or club feet, are euthanized.

**Table 13: Number and Percentage of Wild Horses and Burros That Died During Gather Operations, (for 6 of 10 States) Fiscal Years 2005 through 2007**

Fiscal year	Number removed	Number of accidental deaths	Percentage	Number euthanized	Percentage
2005	9,830	25	0.25%	46	0.47%
2006	8,081	64	0.79	79	0.98
2007	6,944	28	0.40	60	0.86
<b>Total</b>	<b>24,855</b>	<b>117</b>	<b>0.47%</b>	<b>185</b>	<b>0.74%</b>

Source: GAO analysis of BLM data.

Note: This chart is based on data reported by 6 of 10 states: California, Colorado, Idaho, Nevada, New Mexico, and Wyoming. The data provided could not be verified for its reliability. We requested this information from the other four states (Arizona, Montana, Oregon, and Utah), but the information was not provided.

Although BLM national and state officials told us that they sometimes record data about the animals accidentally killed or euthanized during gathers at the BLM state office level, BLM does not centrally compile or report these data to the public on a regular basis on a national level. A BLM official told us that although their main tracking database has the capability to record the number of animals that are killed or euthanized during gathers, they generally do not use the database to do so because it was originally intended to track adoptions. Moreover, BLM has not regularly reported to the public how many wild horses and burros are killed in the course of gathers, although BLM officials have cited the data during public hearings. Some advocates and members of the public believe that gathers are held in secret and highlight individual cases of apparent mistreatment as evidence that inhumane treatment is widespread.

## **Exhibit 9**

John Derek Scasta, *Mortality and Operational Attributes Relative to Feral Horse and Burro Capture Techniques Based on Publicly Available Data from 2010–2019*, 86 *Journal of Equine Veterinary Science* 102,893 (2020)



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## Original Research

## Mortality and Operational Attributes Relative to Feral Horse and Burro Capture Techniques Based on Publicly Available Data From 2010–2019



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## ABSTRACT

Management of excessive feral horse (*Equus ferus caballus*) and burro (*Equus asinus*) populations in the United States and globally has been a controversial subject for decades. I reviewed all available US federal feral horse and burro daily gather reports from 2010 to 2019 to extract equine species, technique (bait trapping or helicopter gathering), reason (emergency or other), number gathered, number of mortalities, and mortality attributes (acute or chronic/pre-existing condition, specific cause). I found 70 reports (bait trapping burros  $n = 10$ , bait trapping horses  $n = 24$ , helicopter gathering horses  $n = 21$ ) from 9 states (AZ, CA, CO, ID, MT, NV, OR, UT, WY) representing 28,821 horses and 2,005 burros. For bait trapping, 100 animals died (4 burros, 96 horses) with 16 acute causes (1 burro, 15 horses) and 84 chronic/pre-existing causes (3 burros, 81 horses). For helicopter gathering, 268 horses died with 62 acute causes and 206 chronic/pre-existing causes. Mortality ratios did not differ by capture technique ( $P > .05$ ) for broken necks, emaciation, acute causes, or chronic/pre-existing causes. The most common mortality-causing problems were structural deformations, club foot, blindness, and emaciation. The more horses gathered per day resulted in a greater proportion of chronic/pre-existing mortalities for both trapping techniques, but only an increase of acute mortalities for helicopter gathering. The slope suggests 1 acute mortality for every 300 horses gathered. The capture mortality rate across all gathers [1.1% (368 mortalities out of 30,826 horses and burros captured)] is below a general threshold of 2% suggested for wildlife studies.

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## 1. Introduction

Management of excessive feral horses (*Equus ferus caballus*) and burros (*Equus asinus*) in the United States has been a controversial and costly subject for many decades [1]. Population growth of these two equine species has been increasing dramatically over the last ten years with the current on-range population estimates of 88,090

animals (71,892 horses and 16,198 burros) which is greater than the federally mandated appropriate management level of 26,690 total horses and burros by a factor of  $>3\times$  [2,3]. A common approach to feral horse and burro population management is gathering and removing horses from rangelands which is guided by the 1971 Wild Free-Roaming Horse and Burro Act (WFRHBA) [4] and subsequent amendments including in the 1976 Federal Land and Policy Management Act [5] and 1978 Public Rangelands Improvement Act [6]. Many of the feral horses and burros in the United States reside on public rangelands administered by the Bureau of Land Management (BLM) within the Department of the Interior; however,  $>46,000$  horses and burros reside in “off-range” temporary holding and  $>90,000$  free-roaming horses and burros also occur on Native American reservations [2,3].

The associated authority for equine gathering procedures are established for BLM Wild Horse and Burro Specialists and contracting partners by the 1971 WFRHBA as amended and are used regularly [4–6]. The standard operating procedures (SOPs) for gathering equids have been refined to optimize animal safety and include the use of helicopters and bait/water trapping [7]. In

**Animal welfare/ethical statement:** This is a third-party assessment of federally approved horse and burro gathers which are under the purview of the Bureau of Land Management (BLM).

**Conflict of interest statement:** The author has not received any funding for this particular mortality analyses and all research, analyses, and writing were conducted independent of BLM input. However, the author has received funding from BLM for unrelated research using GPS/VHF collars on feral horses and has been an observer of bait trapping and helicopter gathering in Wyoming, USA, only for the purposes of being on-site to place collars on horses.

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addition, reporting requirements for BLM Wild Horse and Burro Specialists are mandated [8]. Bait and water trapping techniques (henceforth “bait trapping”) have been around for millennia and use discrete water (in the summer) and feed (both in the summer or winter if forage is limiting) placed in a corral with a gate that can be closed remotely (Fig. 1A). In other countries, bait trapping horses is a common population management technique, such as Australia’s Kosciuszko National Park (Fig. 1B) [9].

Helicopter gathering (“helicopter drive trapping” in some BLM documents; mustering in other regions of the world) is commonly used in extensive landscapes for gathering livestock and for capturing wildlife species [7,10,11] (Fig. 1C). Helicopter gathers use a helicopter to locate and then herd animals toward a set of corrals. For horses specifically, a ground crew is often used along with a domestic horse that leads horses into the corrals. Corrals often have wings comprised of light-weight material that is visible to animals to help funnel them to the corrals. In other countries, helicopter gathering is regularly used, such as for New Zealand’s Kaimanawa horses (Fig. 1D) [12]. For both bait trapping and helicopter gathering, traps and temporary holding sites are placed as close to animal locations as possible to reduce the likelihood of injury and stress to the animals [7].

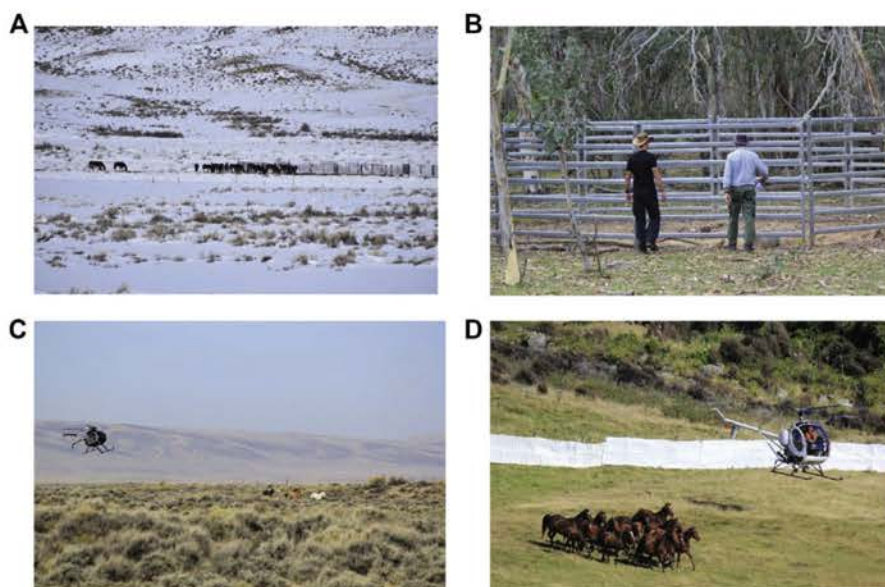
Regardless of technique, the physical handling of any large animal, including wildlife and livestock, brings certain risks for both the animals and their handlers [13]. For animals, such risks include acute injuries incurred during the gathering process or chronic and/or pre-existing conditions that either manifest during the gathering process or that are a welfare concern to supervising veterinarians, agency staff, contractors, and the public [14]. However, stationary bait trapping techniques differ from helicopter gathering techniques in terms of relative labor demands, time constraints, weather limitations, and physical stimulation and stress imposed on ungulates [15]. There is some evidence that helicopter gathering may affect feral horse reproduction [16] although other studies have shown no effect [17]. In addition, because horses and burros may incur new injuries or exacerbate old injuries or conditions during the gathering process, veterinary oversight beyond the mandate for helicopter gathers only may be necessary to optimize animal safety and welfare [7].

Thus, there exists many complex questions attributed to (1) the increase of feral horse and burro populations over the last decade, (2) the need to optimize animal safety during gather procedures, and (3) the need for a more in-depth understanding of daily capture rates of different capture techniques. I therefore analyzed publicly available data for US BLM—authorized horse and burro gathers nationally. I specifically addressed explicit research questions about mortalities relative to gather type, equine species, and operational attributes, specifically the number of animals gathered per day. This information will be of use to other countries seeking to adopt or revise capture techniques, will enhance US BLM horse and burro gathers for BLM staff planning and conducting gathers, and will inform veterinarians overseeing horse and burro health during gathers.

## 2. Materials and Techniques

### 2.1. Source of Data

From September 1 to November 25 of 2019, I reviewed all publicly available BLM feral horse and burro gather reports for all the western US states using daily gather reports [18]. These reports are the result of a 2010 mandated reporting requirement for BLM Horse and Burro Specialists [8]. Reports were reviewed and data were systematically extracted and organized into a database that included the equine species of focus for a gather (horse or burro), type of capture technique (bait trapping or helicopter gathering), reason for the gather (emergency or other), number of animals gathered, number of daily mortalities, and mortality attributes (acute or chronic/pre-existing condition, specific cause). By assessing daily gather reports, I then calculated proportions of mortality relative to the total number of animals gathered and relative to type of capture technique and the proportion of mortality attributes. These calculations were stratified for three capture technique and equine species combinations available in the data: bait trapping burros, bait trapping horses, and helicopter gathering horses. In addition, I calculated the number of animals gathered per successful gather day relative to capture technique and species.



**Fig. 1.** Demonstration of international use of equine capture techniques. (A) Bait trapping in Wyoming, USA, during the winter, (B) bait traps in Australia’s Kosciuszko National Park, (C) helicopter gather in Wyoming, USA, and (D) helicopter gather (muster) of Kaimanawa horses in New Zealand. Photo credit for all photos to J.D. Scasta.



## 2.2. Statistical Analyses

I examined three explicit research questions. First, is bait trapping or helicopter gathering safer for horses and burros in terms of acute and/or chronic–pre-existing mortality causes? To accomplish this and for the appropriate analysis, I stratified equine mortalities at the individual gather level by equine species and cause (acute or chronic/pre-existing), calculated the proportion of equine mortalities relative to the total numbers of animals gathered, and transformed the proportions using an arcsine transformation to meet assumptions of normality. I then ran analysis of variance models with either acute mortality or chronic/pre-existing mortality as a response variable and capture technique (bait trapping or helicopter gather) and then equine species as main fixed effects. I then conducted pairwise comparisons between the three capture techniques and equine species combinations.

The second research questions was, is bait trapping or helicopter gather more effective in terms of daily capture success? For the number of animals gathered per successful gather day, I analyzed the mean number of animals gathered per day as the response variable and capture technique as the main fixed effect, and then similar to the aforementioned analyses, I conducted pairwise comparisons between the three capture techniques and equine species combinations [19]. Because ~92% of mortalities (337 of 367) occurred on days equines were gathered, as opposed to days when they were only shipped or unsuccessful trap days, I then calculated the mean daily acute and chronic/pre-existing mortalities and plotted those relative to the mean number of equines gathered per day (only for days with at least 1 equine gathered) and used linear least squares regression stratified by capture technique to determine strength and significance of relationships.

The third research question was, what are the most frequent medical conditions leading to equine mortalities? I thus summarized reported medical condition and cause of mortality or need for euthanasia for horses and burros relative to capture technique (bait trapping or helicopter) and acute or chronic/pre-existing status of the condition for 32 different identified medical conditions. Given the variability in detail and medical records provided, some of the reported categories are not mutually exclusive, and thus the presentation here reflects that level of variability rather than inclusivity or exclusivity. Finally, I also calculated mortality ratios for broken necks (a specific acute cause of mortality), emaciation (a specific chronic cause of mortality), acute mortalities, and chronic/pre-existing mortalities for horses relative to capture technique and then compared relative risk and mortality ratios between techniques using an independent samples *t*-test, effect size (Cohen's *d*), and 95% confidence intervals [19,20].

## 3. Results

### 3.1. Horse and Burro Gather Report Summary

I found 70 reports (bait trapping burros *n* = 10, bait trapping horses *n* = 24, helicopter gathering horses *n* = 21) from 9 states (AZ, CA, CO, ID, MT, NV, OR, UT, WY) representing 28,821 horses and 2,005 burros (Tables 1 and 2). Reports represented 1,006 unique daily gather activity summaries with 760 of the daily reports being successful gather days, where at least one horse or burro was gathered. No gather reports were available for New Mexico. In a few instances, gather reports were omitted because of confounding factors making it difficult to interpret data, particularly those gathers that were explicitly for administering contraception treatments for research purposes. The 70 gather reports with suitable data in total represented 30,826 total equids (2,005 burros captured with bait trapping, 5,564 horses captured with bait trapping, and

**Table 1**

Details about the bait trapping studies with publicly available gather reports including state, equine species, year, and name of gather.

State	Species	Year	Name of Gather
AZ	Burro	2017	Planet Ranch Nuisance
	Burro	2019	Big Sandy Nuisance
	Burro	2019	Black Mountain Nuisance
CA	Burro	2018	Outside Chemehuevi
	Burro	2018	Piute Mountain
NV	Burro	2017	Johnnie
	Burro	2017	Marietta
	Burro	2018	Bullfrog
	Burro	2019	Bullfrog
CO	Burro	2019	Seven Troughs
	Horse	2016	Sand Wash Basin
	Horse	2018	Little Books
MT	Horse	2015	Pryor Mountain
NV	Horse	2016	Goshute Emergency
	Horse	2016	Maverick-Medicine Emergency
	Horse	2016	Pancake Emergency
	Horse	2016	Stone Cabin
	Horse	2016	Wood Hills Emergency
	Horse	2017	Antelope Valley Private Land
	Horse	2018	Antelope Valley and Goshute Emergency
	Horse	2018	Antelope Valley Deer Spring Emergency
	Horse	2018	Outside Goshute
	Horse	2018	Pancake
	Horse	2018	Spruce-Pequop Emergency
	Horse	2018	Wild Horse Range Emergency
	Horse	2019	Antelope Valley
	Horse	2019	Caliente Complex Nuisance
OR	Horse	2016	Red Rock Emergency
	Horse	2016	South Steens
UT	Horse	2018	South Steens
	Horse	2018	Cedar Mountain Emergency
WY	Horse	2018	Range Creek
	Horse	2013	McCullough Peaks
	Horse	2017	Adobe Town

23,257 horses captured with helicopter gathering) (Table 3). Of those reports, 34 used bait trapping (Table 1) and 36 used helicopter gathering (Table 2). For burros, bait trapping techniques were the only technique used (never helicopter gathers of burros), but both bait/water trapping and helicopter gathering procedures were used for horses (Tables 1 and 2).

### 3.2. Total Mortalities Reported

Across all gather reports, 368 mortalities were reported, 364 horses and 4 burros, representing 1.26% of horses and <1% of burros (Table 3). Acute causes of mortality were noted for 77 horse mortalities and 1 burro mortality. Chronic/pre-existing causes of mortality were noted for 287 horse mortalities and 3 burro mortalities (Table 3).

### 3.3. Trap Techniques and Mortalities

Relative to capture technique, there were 148 daily gather reports for bait trapping burros, 402 daily gather reports for bait trapping horses, and 456 daily gather reports for helicopter gathering horses (Table 1). This accounted for 2,005 burros and 5,564 horses gathered with bait trapping and 23,257 horses gathered with helicopters. A total of 100 animals died during bait trapping (4 burros, 96 horses) with 16 acute mortality causes (1 burro, 15 horses) and 84 chronic/pre-existing causes (3 burros, 81 horses) (Table 3). A total of 268 horses died during helicopter trapping with 62 acute mortality causes and 206 chronic/pre-existing mortality causes (Table 3). The proportion of mortalities relative to the total number of animals gathered for acute mortality causes was 0.0005



**Table 2**

Details about the horse helicopter gathers with publicly available gather reports including state, year, and name of gather.

State	Year	Name of Gather
CO	2015	West Douglas
	2017	Cathedral Creek
ID	2015	Soda Fire Emergency
	2019	Challis
NV	2015	Fish Creek
	2015	Humboldt
	2015	Little Fish Lake
	2016	Eagle and Silver King
	2016	Owyhee
	2017	Fox and Lake Range Emergency
	2017	Reveille
	2018	Eagle Emergency
	2018	Owyhee Complex Emergency
	2018	Silver King
	2018	Triple B Complex
	2019	Fish Creek
	2019	Triple B Complex
OR	2015	Kiger and Riddle Mountain
	2018	Cold Springs
	2018	Warm Springs
UT	2017	Cedar Mountain
	2017	Frisco
	2018	Bible Springs
	2018	Muddy Creek
	2019	Onaqui
	2019	Range Creek
WY	2010	Adobe Town, Salt Wells
	2011	Antelope Hills—Great Divide Basin
	2011	Antelope Hills—Red Desert Complex
	2011	Little Colorado and White Mountain
	2012	North Lander Complex Conant Creek
	2013	Adobe Town, Salt Wells
	2014	Checkerboard
	2017	Adobe Town, Salt Wells, Great Divide Basin
	2018	Red Desert Complex
	2019	Fifteen Mile

( $\pm 0.0005$ , standard error) for bait trapped burros, 0.0041 ( $\pm 0.0015$ ) for bait trapped horses, and 0.0028 ( $\pm 0.0005$ ) for helicopter gathered horses and did not differ for capture technique ( $F = 1.181$ ,  $P = .281$ ) but did differ for equine species ( $F = 5.437$ ,  $P = .023$ ; Fig. 2). The proportion of mortalities relative to the total number of animals gathered for chronic mortality causes was 0.0019 ( $\pm 0.0012$ , standard error) for bait trapped burros, 0.0127 ( $\pm 0.0050$ ) for bait trapped horses, and 0.0073 ( $\pm 0.0013$ ) for helicopter gathered horses and did not differ for capture technique ( $F = 0.340$ ,  $P = .562$ ) but did differ for equine species ( $F = 4.956$ ,  $P = .029$ ; Fig. 2).

### 3.4. Horse Medical Conditions and Need for Euthanasia

Table 4 shows all reported medical conditions and causes of mortality (both natural and euthanasia) for horses and burros

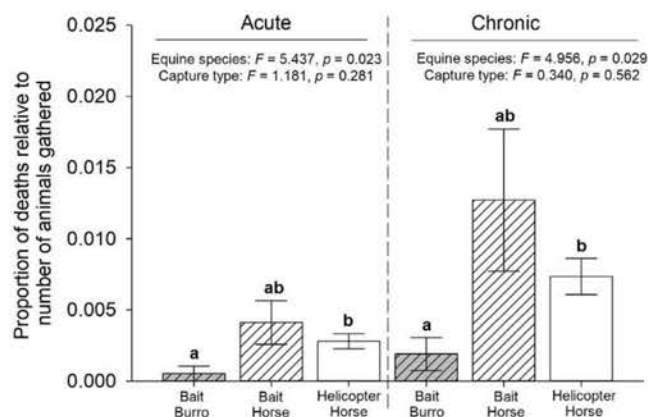
**Table 3**

Summary data for 70 horse and burro gathers in the United States from 2010 to 2019 based on capture technique, equid species gathered, total gather days reported, total animals gathered, and total animals mortalities relative to acute or chronic/pre-existing conditions.

Capture Technique Equine Species	Gather Days	Total Animals Gathered	Total Animal Mortalities	<sup>a</sup> Acute Mortalities	<sup>b</sup> Chronic/Pre-Existing Mortalities
Bait trapping					
Burro	148	2,005	4	1	3
Horse	402	5,564	96	15	81
Helicopter gathering					
Horse	456	23,257	268	62	206
Total	1,006	30,826	368	78	290

<sup>a</sup> Acute mortality considered when an animal dies or is euthanized due to acute injuries or medical conditions brought about by the gather and removal process including associated activities of capturing, sorting, and holding; includes undiagnosed mortalities.

<sup>b</sup> Chronic/pre-existing mortality considered when an animal dies or is euthanized for reasons related to chronic or pre-existing conditions such as poor body condition, lameness, serious physical defects, etc. Includes animals euthanized for conditions not brought about by the gather activity.



**Fig. 2.** Proportion of equine mortalities relative to equine capture technique and acute or chronic/pre-existing medical condition. Proportion data were transformed using an arcsine transformation to meet assumptions of normality and analyzed with analysis of variance (ANOVA) models with either acute mortality or chronic/pre-existing mortality as a response variable and capture technique type (bait trapping or helicopter gather) and then equine species as main fixed effects. Pairwise comparisons between the three technique and equine species combinations were assessed and are considered significantly different with different letters (a, b) at  $P < .05$ . Data from 70 publicly available gather reports (bait trapping burros  $n = 10$ , bait trapping horses  $n = 24$ , helicopter gathering horses  $n = 21$ ) from 9 US states (AZ, CA, CO, ID, MT, NV, OR, UT, WY) representing 28,821 horses and 2,005 burros from 2010 to 2019.

relative to capture technique (bait trapping or helicopter) and acute or chronic/pre-existing status of the condition. Regardless of gathering procedure, the most common health problems and mortality cause identified was structural deformations for 58 horses which in our assessment, included developmental abnormalities and improperly healed bone breaks that resulted in deformed limbs, joints, or other features. The second-most common, which is a more specified form of structural deformation, was club foot for 42 horses. The third-most common was blindness for 44 horses. In some cases, specific details about a missing eye or eye injury were provided. The fourth-most common was emaciation and poor body condition for 33 horses and 1 burro. Horses identified as being emaciated often also had other noted problems including being old and tooth wear (although these were not always mentioned). When emaciation was assessed relative to total animals caught per capture technique, mortality ratios were 0.0033 ( $\pm 0.0025$ ) and 0.0009 ( $\pm 0.0004$ ) for bait and helicopter, respectively, but did not significantly differ [ $P = .254$ , Cohen's  $d = 0.304$ , 95% CI ( $-0.217$ ,  $0.822$ )] (Table 5). The fifth-most common was broken legs for 29 horses and 2 burros. The sixth-most common was unknown for 28 horses. Broken necks were noted for 21 horses and 1 burro. Broken neck mortality ratios were 0.0026 ( $\pm 0.0014$ ) and 0.0006 ( $\pm 0.0003$ ) for bait and helicopter respectively, but did not differ significantly [ $P = .112$ , Cohen's  $d = 0.425$ , 95% CI ( $-0.099$ ,  $0.945$ )] (Table 5). Broken legs and broken backs occurred in both capture



**Table 4**

Reported medical condition and cause of mortality or need for euthanasia for horses and burros relative to capture technique (bait trapping or helicopter) and acute or chronic/pre-existing status of the condition.

Diagnoses/Condition/Cause	Bait Trapping		Helicopter		Total
	Acute	Chronic	Acute	Chronic	
Aortic aneurysm			1		1
Blind		15		29	44
Broken back		2		6	8
Broken leg	4	11	11	5	31
Broken neck	10		12		22
Burn injuries				2	2
Capture myopathy			2		2
Cardiac arrest			1		1
Club foot		23		19	42
Colic		1	1		2
Dehydration		2			2
Emaciated		15		19	34
Head injury/fractured skull			4	1	5
Hernia				3	3
Hip dislocation				1	1
Infection				1	1
Laceration			3		3
Lameness		3		21	24
Neurologic disorder	1				1
New fatal injuries			11		11
Parasite infestation				6	6
Pneumonia		1		5	6
Pre-existing condition		1		7	8
Pre-existing wounds				7	7
Seizure			1		1
Strain			5		5
Structural deformation		7		51	58
Tooth loss		1		4	5
Toxicity			1		1
Tumors				2	2
Unknown	1	2	9	16	28
Weak				1	1
<b>Total</b>	<b>16</b>	<b>84</b>	<b>62</b>	<b>206</b>	<b>368</b>
<b>Euthanasia</b>	<b>6</b>	<b>81</b>	<b>30</b>	<b>187</b>	<b>304</b>
<b>Natural</b>	<b>7</b>	<b>1</b>	<b>27</b>	<b>4</b>	<b>39</b>
<b>Unknown</b>	<b>3</b>	<b>2</b>	<b>5</b>	<b>15</b>	<b>25</b>

Data derived from 70 horse and burro gathers in the United States from 2010 to 2019 using publicly available gather data as administered by the Bureau of Land Management.

technique with broken backs only noted as chronic/pre-existing. Other less-frequent health conditions included aortic aneurysm (1), burn injuries (2), capture myopathy (2), cardiac arrest (1), colic (2), dehydration (2), head injury/fractured skull (5), hernia (3), hip dislocation (1), infection (1), laceration (3), lameness (24 horses [no burros] reported and details include arthritis, fetlocks, laminitis, etc., [21]), neurologic disorder (1), new fatal injuries undefined (11), parasite infestation (6), pneumonia (6), pre-existing condition (8),

pre-existing wounds (7), seizure (1), strain (5), tooth loss and wear (5), toxicity (1), tumors (2), and weakness (1) (Table 4).

Acute mortalities occurred in 10 of 24 bait trap gathers of horses and 23 of 36 helicopter gathers of horses (Table 5). Acute mortalities occurred in 15 of 5,564 horses caught with bait trapping and 62 of 23,257 horses caught with helicopter trapping (Table 5). For horse acute mortalities, the bait mortality ratio was 0.0041 ( $\pm 0.0015$ ) and the helicopter mortality ratio was 0.0028 ( $\pm 0.0013$ ), with a relative risk of 1.5. When analyzed, horse acute mortality ratios did not differ significantly [ $P = .388$ , Cohen's  $d = 0.229$ , 95% CI ( $-0.290$  to  $0.746$ )] (Table 5).

Chronic mortalities occurred in 13 of 24 bait trap gathers of horses and 26 of 36 helicopter gathers of horses (Table 5). Acute mortalities occurred in 81 of 5,564 horses caught with bait trapping and 206 of 23,257 horses caught with helicopter trapping (Table 5). For horse chronic mortalities, the bait mortality ratio was 0.0127 ( $\pm 0.0050$ ) and the helicopter mortality ratio was 0.0073 ( $\pm 0.0013$ ), with a relative risk of 1.7. When analyzed, horse acute mortality ratios did not differ significantly [ $P = .220$ , Cohen's  $d = 0.326$ , 95% CI ( $-0.195$  to  $0.845$ )] (Table 5).

### 3.5. Number Gathered Daily Relative to Capture Technique

For capture technique, the mean number of animals gathered per successful gather day was 20 ( $\pm 6$ ) for bait trapping burros, 19 ( $\pm 3$ ) for bait trapping horses, and 58 ( $\pm 5$ ) for helicopter gathering horses; significantly higher for helicopter gathering ( $P < .001$ ; Fig. 3). The range of mean number of animals gathered per successful gather day was 7–63 for bait trapping burros, 4 to 67 for bait trapping horses, and 15 to 131 for helicopter gathering horses.

### 3.6. Mortalities Relative to Number Gathered per Day

When the average number of equids gathered per day was used to predict the mean daily mortalities only for days equids were actually gathered, relationships differed by equine species and capture technique. For bait trapping burros, the more burros trapped in a day had no significant or correlative effect on acute ( $r^2 = 0.03$ ,  $P = .656$ ) or chronic mortalities ( $r^2 = 0.11$ ,  $P = .341$ ) (Fig. 4A). For bait trapping horses, the more horses gathered per day had no significant or correlative effect on acute mortalities ( $r^2 = 0.13$ ,  $P = .083$ ); however, chronic mortalities increased ( $r^2 = 0.36$ ,  $P = .002$ ) (Fig. 4B). For helicopter gathering horses, the more horses gathered per day resulted in increased acute ( $r^2 = 0.24$ ,  $P = .003$ ) and chronic mortalities ( $r^2 = 0.22$ ,  $P = .004$ ) (Fig. 4C). When the slope ( $m = 0.0035$ ) for the linear equation predicting increasing acute mortalities is examined, the increase of 1 additional acute mortality

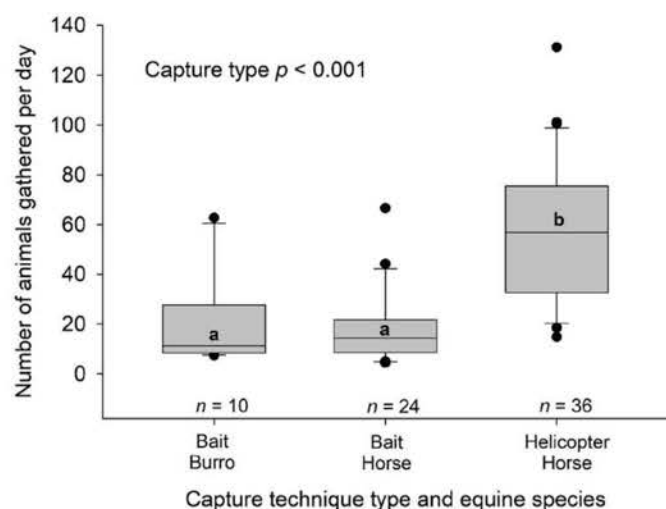
**Table 5**

Mortality ratios for both capture techniques and relative risk for horse bait trapping relative to horse helicopter trapping for broken necks, emaciated condition, acute mortalities, chronic/pre-existing mortalities, and total mortalities.

Metric	Broken Neck	Emaciated	Acute Mortalities	Chronic Mortalities
Bait gather occurrence (of 24 gathers)	7 of 24	4 of 24	10 of 24	13 of 24
Helicopter gather occurrence (of 36 gathers)	8 of 36	8 of 36	23 of 36	26 of 36
Bait horse occurrence (of 5,564 horses)	9 of 5,564	14 of 5,564	15 of 5,564	81 of 5,564
Helicopter horse occurrence (of 23,257 horses)	12 of 23,257	19 of 23,257	62 of 23,257	206 of 23,257
Bait mortality ratio ( $\pm$ standard error)	0.0026 ( $\pm 0.0014$ )	0.0033 ( $\pm 0.0025$ )	0.0041 ( $\pm 0.0015$ )	0.0127 ( $\pm 0.0050$ )
Helicopter mortality ratio ( $\pm$ standard error)	0.0006 ( $\pm 0.0003$ )	0.0009 ( $\pm 0.0004$ )	0.0028 ( $\pm 0.0013$ )	0.0073 ( $\pm 0.0013$ )
Relative risk (bait/helicopter)	4.2	3.6	1.5	1.7
$P$ -value ( $\alpha = 0.05$ )	.112	.254	.388	.220
Effect size (Cohen's $d$ )	0.425	0.304	0.229	0.326
95% Confidence intervals (lower, upper)	−0.099, 0.945	−0.217, 0.822	−0.290, 0.746	−0.195, 0.845

Data from 60 publicly available gather reports (bait trapping horses  $n = 24$ , helicopter gathering horses  $n = 21$ ) from 9 US states (AZ, CA, CO, ID, MT, NV, OR, UT, WY) representing 28,821 horses from 2010 to 2019.





**Fig. 3.** Number of horses and burros gathered per day across 10 burro bait trap gathers, 24 horse bait trap gathers, and 36 horse helicopter gathers from 2010 to 2019 as administered by the Bureau of Land Management. Numbers are derived for days reporting at least 1 animal gathered as some daily reports were days where trapping efforts were made but no animals were caught. Pairwise comparisons between the three technique and equine species combinations were assessed and are considered significantly different with different letters (a, b) at  $P < .05$ . Data from 70 publicly available gather reports (bait trapping burros  $n = 10$ , bait trapping horses  $n = 24$ , helicopter gathering horses  $n = 21$ ) from 9 US states (AZ, CA, CO, ID, MT, NV, OR, UT, WY) representing 28,821 horses and 2,005 burros from 2010 to 2019.

daily could be expected with gathering an additional 300 horses per day.

## 4. Discussion

### 4.1. Gathering Equids Reveals Many Chronic/Pre-existing Medical Conditions

The process of gathering equids, regardless of capture technique, reveals many chronic and pre-existing medical conditions from which feral horses and burros may be suffering. Structural deformities were the most common medical condition and included a wide range of conditions including deformities from developmental origins, improperly healed broken bones, etc. Specific structural deformities were diagnosed in some cases such as club foot which was the second-most prevalent issue. A limitation of this study is that often there were very limited details regarding the diagnoses of mortality making it difficult to understand more specific death causes. Regardless, research on feet of wild horses in New Zealand also revealed a frequent occurrence of foot abnormalities and undesirable foot morphometric traits [22]. Such feet problems can lead to subchondral bone sclerosis particularly in horses with severe articular cartilage damage with severity increasing as horses aged in the same population of New Zealand wild horses [23]. Reintroduction of Przewalski's horses (*Equus ferus przewalskii*) includes a selection criterion of captive breeding stock that addresses horse hooves [21]. Furthermore, lameness was noted in more than ten horses, and while causality for lameness was difficult to ascertain from the reports, it was often associated with feet and lower legs (i.e., fetlocks). Problems of the eyes, particularly blindness in one or both eyes, were the third-most common medical condition. Although blindness has not been studied much in wild horses, trauma can be a cause of blindness in horses generally and can be attributed to both perforation injury and blunt trauma injury leading to optic nerve atrophy [24].

### 4.2. Emergency Gathers Have Greater Frequency of Chronic/Pre-existing Medical Conditions

The greater relative occurrence for associated chronic/pre-existing mortalities may likely be skewed as a function of the greater proportion of emergency gathers. Specifically in this data set, emergency gathers of horses represented 42% of the bait trap gathers (10 of 24) but only 11% (4 of 36) of helicopter gathers. A plausible argument could be made that the prompt for emergency gathers is often inadequate forage and/or water and thus horses and burros that subsequently have lower body condition and other problems such as reduced immunity, etc. This notion is supported by relative proportion of emaciated horses for the different capture techniques (Table 5). Thus, prudence in capturing and shipping emaciated animals should be part of the welfare consideration integrated into wild horse and burro management similar to other wild herbivore management programs [25].

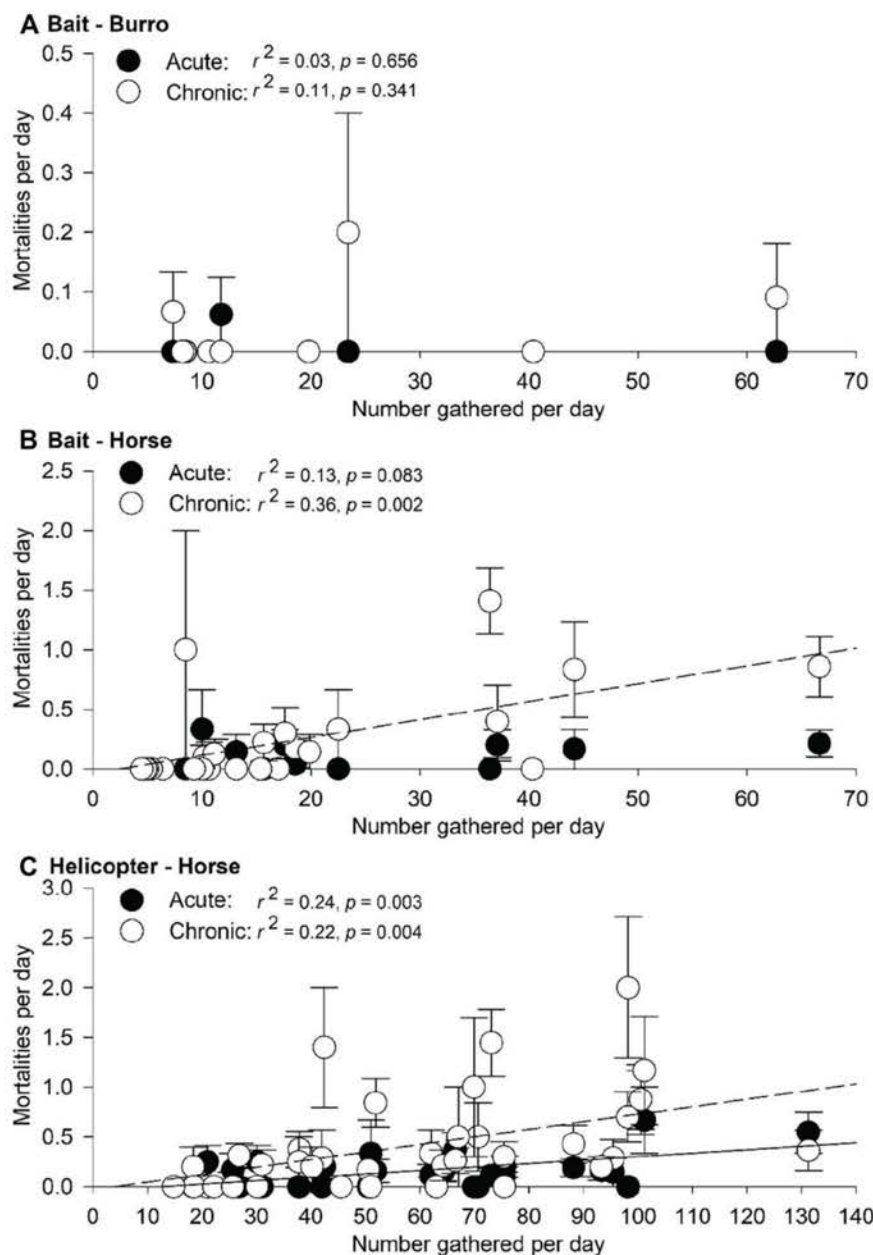
### 4.3. Helicopter Gathering Does Not Present Any Greater Risk of Mortalities

Helicopter gathering may be as safe, if not safer than bait trapping—a conclusion that seems counterintuitive given the perception that helicopter gathering may be perceived as a more dangerous and physically demanding technique particularly given the agitated escape behavior wild equids display in response to helicopters [12,26]. The notion of no greater risk for helicopter gathering may be supported by the proportionally lower incidence of broken necks and lack of statistical differences specifically and the similar proportion of acute mortalities generally when compared with bait trapping. Greater emphasis on SOPs for (1) gather operations generally [7], (2) daily gather reporting specifically [8], and (3) for helicopter pilots certification [27] may all have collectively enhanced gather implementation. In addition, in 2010, a private horse protection group worked with BLM to develop an Independent Designated Observer Pilot Program with independent observers (IOs), where equine specialists not affiliated with BLM observed 3 gathers in 3 states of a total of 352 horses [28]. The IOs observed four mortalities and multiple injuries and concluded that contractors and BLM staff were skilled at avoiding excessive stress on captured animals but also gave recommendations to improve facility design, handling of the horses, sorting techniques, transport practices, etc. [28]. Specifically, a focused emphasis on the design of gathers to optimize the care and welfare of horses and the precision with which pilots are handling horses and burros from the air may be outcomes of such high-level administrative direction and participatory involvement. In addition, helicopter gathering has a greater daily capture rate and may optimize animal handling times.

### 4.4. Need to Better Understand Unknown Mortality Causes and Capture Myopathy of Horses

Interestingly, capture myopathy was only noted for the death of 2 horses. The unknown causes of death in horses, coupled with the documented deaths attributed to strain/stress, seizure, and cardiac arrest (Table 4), in this study could be attributed to capture myopathy [13]. Capture myopathy is a noninfectious metabolic disease that is most commonly associated with pursuit, capture, restraint, and transportation of animals and the induced stress that can lead to death either during or after capture efforts [29]. Unfortunately, capture myopathy has been persistently difficult to diagnose and includes several different clinical syndromes including capture shock syndrome, ataxic myoglobinuric syndrome, ruptured muscle syndrome, and delayed peracute syndrome [13]. Owing to the absence of more detailed medical data





**Fig. 4.** Comparison of mean daily mortalities relative to mean number of equines gathered per day for (A) bait trapping burros, (B) bait trapping horses, and (C) helicopter gathering horses. Data from 70 publicly available gather reports (bait trapping burros  $n = 10$ , bait trapping horses  $n = 24$ , helicopter gathering horses  $n = 21$ ) from 9 US states (AZ, CA, CO, ID, MT, NV, OR, UT, WY) representing 28,821 horses and 2,005 burros from 2010 to 2019. Significant trendlines graphed as solid lines for acute mortalities and dashed lines for chronic mortalities.

necessary to confirm diagnoses, more thorough investigations of unknown death causes are needed, particularly for helicopter gathers [30].

#### 4.5. Comparison of Equid Mortality Rates to Other Wildlife Species and Capture Techniques

The total capture mortality rate across all gathers in this study [1.1% (368 mortalities of 30,826 horses and burros captured)], or for specific horse capture techniques (bait mean =  $1.7\% \pm 0.5\%$  SE; helicopter mean =  $1.0\% \pm 0.1\%$  SE), can be compared with capture-related mortality rates published for other wildlife species. For 5 wildlife species chemically immobilized in Scandinavia, the mean mortality rate was 2.3% and ranged from 0.7% to 3.9% [31]. For

white-tailed deer caught with 4 different physical trapping techniques, capture-related mortality rates ranged from 2.0% to 20.7% [32]. For caribou calves darted from a helicopter, capture-related mortality rates ranged from 0.5% to 4.1% [33]. Thus, given the capture-related mortality rates from these studies, and the recommendation that  $>2\%$  capture mortality is unacceptable [31], it seems that BLM horse and burro welfare is generally being optimized to a level acceptable across other animal handling disciplines [31]. It is important to note however that for several individual gathers, mortality rates exceeded 2% mortality. Two gathers were emergency gathers that had mortality rates  $>3.5\%$  and  $>10.5\%$  (2018 Wild Horse Range Emergency gather and 2016 Goshute Emergency gather, both in Nevada). In addition, one helicopter gather had a mortality rate  $>3.5\%$  due to a prevalence of genetically related



structural deformations and lameness (2018 Warm Springs gather in Oregon, specifically “angular limb deformities (ALD), conditions were indicated by club feet, severely overgrown hoof walls, collapsed heels, limb deformity, arthritic joints, toes pointed out at the fetlock, and lameness”). Thus, a distinguishing feature of the US federal horse and burro management is the intervention when forage and water is limiting and/or when horses are suffering from other health problems, which is fundamentally different than capturing healthy animals for wildlife research. This emphasizes the continued need for quality equine veterinary care and the importance of having detailed medical history and veterinarian diagnoses and/or necropsies to move beyond lay terms and general attributions of mortalities.

## 5. Conclusions

This study assesses feral equine capture techniques in the United States, which is an important tool for when horse and burro overpopulation threatens the “thriving natural ecological balance” of rangelands [32,33]. My objective analyses of publicly available BLM equine gather data over 70 gathers, 9 states, 30,826 horses and burros, and a 10-year period has allowed for quantitative analyses that suggests helicopter gathering presents no additional risk for acute mortalities than bait trapping. Moreover, helicopter trapping can capture more horses per day. I also have provided details that both veterinarians and federal horse managers can use proactively when preparing for and supervising gathers; specifically, being aware of structural deformities, feet problems, blindness, and a greater prevalence of emaciated horses or acute mortality manifestations relative to capture technique and reason for a gather. In addition, emergency gathers may have a greater risk of mortalities attributed to handling weaker and sicker horses. My results should be considered in the context of repeatedly gathering mares for other treatments and could also guide animal welfare frameworks for US horses and burros [34–37].

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# **Exhibit 10**

## **BLM Permanent Instruction Memorandum 2021-007: Euthanasia of Wild Horses and Burros Related to Acts of Mercy, Health or Safety**



## EUTHANASIA OF WILD HORSES AND BURROS RELATED TO ACTS OF MERCY, HEALTH OR SAFETY.

PIM 2021-007

Permanent Instruction Memorandum

### United States Department of the Interior

BUREAU OF LAND MANAGEMENT

Washington, D.C. 20240

<https://www.blm.gov>

May 26, 2021

In Reply Refer To:

4730 (260) P

#### Permanent Instruction Memorandum No. 2021-007 (Revised)

To: All Field Office Officials  
 From: Assistant Director, Resources and Planning  
 Subject: Euthanasia of Wild Horses and Burros Related to Acts of Mercy, Health or Safety.

**Program Area:** Wild Horse and Burro (WHB) Program

**Purpose:** This Permanent Instruction Memorandum (PIM) establishes policy and procedures for the euthanasia of wild horses and burros managed by the Bureau of Land Management (BLM) when the BLM determines, consistent with this policy, an appropriate end-of-life action is required for reasons related to acts of mercy, health or safety.

**Policy/Action:** Effective immediately, all BLM state, district, and field offices must comply with the policies described in this PIM. The key aspects of this policy are the authority, training, approved methods, reporting documentation, and reasons for euthanizing a wild horse or burro related to acts of mercy, health, or safety (Attachments 1 and 2).

The Authorized Officer (AO) or the Authorized Officer's Representative (AR) will euthanize or authorize the euthanasia of a wild horse or burro when any of the following conditions exist:

1. Sickness, failing health, or an infirmity, disease, injury, lameness, or serious physical condition or defect that has a poor prognosis for improvement or chance of recovery. This includes conditions that are not treatable or when treatment is impractical for a wild horse or burro in its present setting.
2. A Henneke body condition score (Attachment 2) of less than three with a poor prognosis for improvement.
3. Old age characterized by physical deterioration, the inability to fend for itself, suffering or closeness to death.
4. Direction from a state or federal animal health official ordering the euthanasia of the animal as a disease control measure.
5. The animal exhibits dangerous characteristics beyond those inherently associated with the wild characteristics of wild horses and burros.
6. The animal poses a public safety hazard (e.g., loose on a busy highway), has escaped from a facility or pasture or is otherwise roaming freely in an unauthorized area and an alternative remedy (capture, relocation or return to a herd management area (HMA), pasture or facility) is not immediately available.

**Budget Impact:** None.

**Background:** The authority for euthanizing a wild horse or burro is provided by Public Law 92-195, Wild Free-Roaming Horses and Burros Act of 1971 Section 1333 (b)(2)(A) and 43 CFR 4730.1. The policy contained in this PIM amends and/or replaces previous policies contained in BLM Handbook H-4750-1 Wild Horse and Burro Preparation and Management and in BLM Handbook H-4700-1 Wild Horses and Burros Management.

The humane care of wild horses and burros on the range, during gathers, or located on off-range corrals/pastures or other facilities require periodic evaluation of their condition by qualified BLM personnel or a veterinarian to provide for their well-being. At times, these evaluations will result in decisions that require euthanasia. These decisions are made with the intent to prevent animal suffering through acts of mercy, protecting animal and public health and safety, and the definitions of "old, sick and lame" that are provided in 43 CFR 4700.0-5 as follows:

1. Old Wild Horse or Burro - Characterized because of age by its physical deterioration and inability to fend for itself, suffering, or closeness to death.
2. Sick Wild Horse or Burro - A wild horse or burro with failing health, infirmity, or disease from which there is little chance of recovery.
3. Lame Wild Horse or Burro - A wild horse or burro with one or more malfunctioning limbs that permanently impair its freedom of movement.

**Pages of Manual/ Handbook Sections Affected:** This IM supersedes the Wild Horses and Burros Management Handbook, H-4700-1 Section 4.9.

**Instruction Memorandums Affected:** This IM replaces expired IM 2015-070, Animal Health, Maintenance, Evaluation and Response

**Coordination:** This PIM was coordinated among HQ-100, HQ-200, HQ-260, HQ-600, WHB State Leads, APHIS Veterinarian, WHB Facility Managers, and WHB Specialists.

**Contact:** Direct all questions regarding this IM to the Division Chief, Wild Horse and Burro Program (HQ-260) at 866-468-7826 or [wildhorse@blm.gov](mailto:wildhorse@blm.gov).

Signed by:	Authenticated by:
David Jenkins	Ambyr Fowler
Assistant Director	Division of Regulatory Affairs and Directives, (HQ-630)
Resources and Planning	

#### 3 Attachments

1. Guidance for Euthanasia Related to Acts of Mercy, Health, and Safety (11 pp)
2. Henneke Equine Body Condition Scoring Chart (1 p)
3. Firearms training and certification

#### ATTACHMENTS

[PIM2021-007 ATT1 WHB EUTHANASIA POLICY \(UPDATED\) \(PDF / 537 KB\)](#)

[PIM2021-007 ATT2- HENNEKE BODY SCORING CHART \(PDF / 243 KB\)](#)

[PIM2021-007 ATT3- FIREARMS TRAINING AND CERTIFICATION \(PDF / 84 KB\)](#)

FISCAL YEAR

2021



## **Attachment 1: Guidance for Euthanasia**

### **I. Euthanasia for Reasons Related to Acts of Mercy or Health and Safety**

The Authorized Officer (AO) will authorize the euthanasia of a wild horse or burro when any of the following conditions exist:

- A. Sickness, failing health, or an infirmity, disease, injury, lameness, or serious physical condition or defect that has a poor prognosis for improvement or little chance of recovery. This would include conditions that are not treatable or for which treatment is impractical for a wild horse or burro in its present setting. This includes but is not limited to the following:
  - 1. Severe tooth loss or wear.
  - 2. Club foot, particularly those that are beyond vertical or affect more than one foot.
  - 3. Permanent blindness; particularly double eye blindness or single eye blindness that involves an injury or condition that would require treatment or single eye blindness to which the animal is not well adjusted.
  - 4. Cryptorchidism that is bilateral.
  - 5. Cryptorchidism that is unilateral and cannot be completely corrected with confidence by castration.
  - 6. Enlarged joints or deformed limbs such as from injury or severe arthritis.
  - 7. Other serious or severe acquired, developmental, or congenital abnormalities.
- B. A Henneke body condition score (Attachment 2) of less than three with a poor prognosis for improvement.
- C. Old age characterized by physical deterioration, the inability to fend for itself, suffering, or closeness to death.
- D. Direction from a state or federal animal health official ordering the humane destruction of the animal as a disease control measure.
- E. The animal exhibits dangerous characteristics beyond those inherently associated with the wild characteristics of wild horses and burros.
- F. The animal poses a public safety hazard (e.g., loose on a busy highway), has escaped from a facility or pasture or is otherwise roaming freely in an unauthorized area and an alternative remedy (capture, relocation, or return to a herd management area (HMA), pasture or facility) is not immediately available.

## II. Authorized Delegations and Required Training

### A. Authority to Authorize Euthanasia

Decisions regarding the euthanasia of a wild horse or burro rest solely with the Bureau of Land Management's (BLM's) AO, defined in 43 CFR 4700.0-5 as "any employee of the Bureau of Land Management to whom has been delegated the authority to perform the duties described herein," or the Authorized Officer's Representative (AR) (persons designated by the AO as described in 43 CFR 4730.1). In some cases, the decision to euthanize an animal must be made in the field and cannot always be anticipated. To minimize suffering by providing euthanasia in a timely manner, managers should have a sufficient number of individuals trained to perform euthanasia that meet the state director's firearm standards, the requirements outlined in 43 CFR 4700, and in this Instruction Memorandum. When possible, a veterinarian should be consulted prior to euthanasia unless circumstances necessitating euthanasia are urgent or obvious (e.g., a broken leg or other severe injury) and a logistical delay in obtaining this consultation would only prolong an animal's suffering.

### B. Authorization to Perform Euthanasia

Authorized Officers may delegate the authority to perform euthanasia in writing to anyone known to the AO to have completed required training, skill, experience, and equipment to perform euthanasia described in this policy (See Guidance for Euthanasia Related to Acts of Mercy, Health, Safety Section D.). Individuals to whom the AO may consider delegating this authority include BLM employees, veterinarians, individuals under contract with the BLM, individuals performing duties under assistance agreements with the BLM, federal, or state wildlife management officers, animal control officers, and law enforcement officers.

On gathers, at preparation facilities (facilities where animals are prepared for transport or adoption), at off-range corrals (ORC) or off-range pastures (ORP) facilities, and at inmate training facilities, the AO is responsible for ensuring trained personnel are available to perform euthanasia at appropriate times. This includes anytime when wild horses or burros are being captured, sorted, worked, or loaded for transportation, regardless of location. At adoptions and public events, the AO will ensure that a veterinarian is on-site or on-call to perform timely and discreet euthanasia if necessary, as an act of mercy.

### C. Training Requirements

Only persons trained by a veterinarian on how to perform euthanasia will be authorized to perform euthanasia. All personnel authorized to perform euthanasia will be trained to use gunshot. Only those specifically trained on the techniques for injection or captive bolt are authorized to use these techniques. Any veterinarian known to the AO to have the necessary knowledge and experience with the methods described herein may provide this training. This training will not require recertification on an annual basis; however, the Washington Office (WO) may direct individuals to take refresher training if there are significant changes in the acceptable practices.

When a firearm (includes captive bolt guns) is used to perform euthanasia by a non-BLM employee, that individual must also have formal training or certification in firearms safety. Appropriate certification for non-BLM personnel would include a hunter or firearms safety qualification recognized as satisfying a state-mandated hunter safety requirement or a firearms safety class certified by the National Rifle Association, law enforcement, or military program.

BLM employees performing euthanasia with a free-bullet or captive bolt gun must be authorized to use a firearm by the state director and meet all requirements specified in the state office firearms policy. If a state has not issued a firearms policy addressing Wild Horses and Burros (WHB) euthanasia, the BLM employees performing euthanasia must complete annual training for certification in firearms safety and shooting proficiency in accordance with current BLM policy (see attachment 3).

### **III. Euthanasia Related to Specific WHB Management Activities**

#### **A. Euthanasia On-The-Range**

This section sets euthanasia policy for the BLM in field situations associated with on-the-range WHB management, including lands other than those administered by the BLM where WHBs are present.

The BLM WHB specialist responsible for management of an HMA will evaluate the condition of wild horses and burros throughout the year during routine resource monitoring efforts. If an animal is suffering from any of the conditions listed in A through F [above](#), the animal should be euthanized, if possible, on the range as an act of mercy. If euthanasia is not possible, humane killing as described in Section F below may be performed as an act of mercy. On the range, the euthanasia may be performed by any BLM employee or other qualified individual that has been delegated that authority by the AO, successfully completed the required training in euthanasia and firearms safety as described [above](#) and has the appropriate equipment available.

#### **B. Euthanasia During Gather Operations**

During gather operations, the Contracting Officers Representative (COR), as delegated by the AO prior to the gather, will authorize the release or euthanasia of any wild horse or burro that they believe will not tolerate the handling stress associated with transportation, adoption/sales preparation, or holding. No wild horse or burro should be released or shipped to a preparation or other facility with a preexisting condition that requires immediate euthanasia as an act of mercy. The COR or Project Inspector (PI) should, as an act of mercy and after consultation with a veterinarian if present, euthanize any animal that meets any of the conditions described in A through F [above](#).



### C. Euthanasia at Off-Range Corrals, including Inmate Training Facilities

If euthanasia is necessary at an ORC facility it will be performed by a trained and qualified individual as authorized by the AO. The BLM employees and contractors follow comprehensive animal welfare program standards to protect the health and welfare of wild horses and burros under their care. However, acute or chronic problems can develop during the captivity and handling of wild animals that must be humanely addressed by euthanasia. Some conditions may not immediately be apparent during gathers or other points of origin, require additional assessment or evaluation over time, or may best be addressed after an animal is moved to an ORC or preparation facility. Euthanasia at all ORC and preparation facilities will be applied as follows:

1. If an animal is affected by any of the conditions described in A through F [above](#) that causes acute pain or suffering and immediate euthanasia would be an act of mercy, the AO must ensure the animal is immediately euthanized.
2. If an animal is affected by any of the conditions described in A through F [above](#), but is not in acute pain, the AO should first consult a veterinarian. For example, if the animal has a physical defect or deformity that would adversely affect its quality of life, if placed in the adoption program or in ORP facilities, but acute suffering is not apparent, a veterinarian should be consulted prior to euthanasia. If the consultation confirms the animal meets a condition described in A through F [above](#), the animal will be euthanized in a timely manner.
3. If the AO or AR concludes, after consultation with a veterinarian, that an animal in an ORC facility is affected by any of the conditions described in A through F [above](#) or cannot tolerate the stress of transportation to another facility or adoption preparation, then the animal will be euthanized.

### D. Euthanasia at Off-Range Pasture and Public Off-Range Pasture Facilities

The goal at ORP and PORP facilities is to maintain healthy animals in good body condition at all times. When animals are affected by chronic conditions such as failing health, cancer, limb deformities, arthritis or other causes of illness or persistent lameness and before they show signs of suffering or a loss of overall body condition, euthanasia must be considered as an act of mercy.

Periodically throughout the year, the BLM COR, Project Inspector (PI), Program Officer (PO), or Technical Advisor (TA) responsible for oversight will evaluate all horses and burros and establish their body condition, particularly if the facility is experiencing drought or some other event, which might limit forage availability. During the year, if any animal is affected by any of the conditions listed in A through F [above](#); the authorized personnel will euthanize that animal as soon as possible or within one week of consultation with the COR, PO, PI or TA.

A team will formally evaluate the condition of each animal on the ORPs at least annually. The evaluation team will consist of a BLM WHB personnel designated by the COR/PO and the U.S. Department of Agriculture (USDA) Animal and Plant Health Inspection Service (APHIS) or other veterinarian acceptable to the COR or PO.

The action plan for formal evaluation includes annual inspections of all animals to evaluate their apparent health, overall condition and body condition. These inspections may identify animals that must be euthanized as an act of mercy to prevent slow and painful deaths. Visual inspections and the Henneke body condition (BC) scoring system are the prescribed methods used for the evaluation. All evaluations should be conducted prior to severe winter weather to identify horses with body condition scores of three or less before the onset of bad weather.

The PI or designated person, such as the contractor, will euthanize animals in the field within 72 hours of the evaluation. Animals with a body condition score of one or two that appear to be acutely suffering or have a poor prognosis for improvement should be euthanized sooner, if possible. Animals with a body condition score of three, or less that do not appear to be acutely suffering or have a fair or better prognosis for improvement will be rechecked in 30 days. Those that remain below BC 3 will be euthanized within 72 hours of the second evaluation. Arrangements for carcass disposal for euthanized animals will be in accordance with applicable state and county laws and ordinances.

Only the COR or PO can authorize the destruction of an animal from an ORP when that animal poses a public safety hazard or has escaped or is otherwise roaming freely in an unauthorized area when alternative remedies to capture or relocate the animal(s) have failed.

#### E. Euthanasia during Transportation

Problems can develop during transport of the animal(s), such as, new injuries that may occur or the exacerbation of existing conditions. If emergency euthanasia is necessary during transportation for any of the conditions described in A through F [above](#), the truck driver must immediately contact the AO, the COR, or other identified BLM representative. Under these circumstances, a veterinarian should be contacted immediately to evaluate the animal and perform euthanasia if indicated as soon as possible. If necessary, the animal(s) may need to be off-loaded at the closest BLM or suitable livestock handling facility to ensure that euthanasia can be performed safely and effectively.

#### F. Euthanasia at Adoptions or Public Events

The AO will ensure that a veterinarian is on-site or on-call and available to respond within two hours at any adoption or public event. If a veterinarian is unable to respond within that timeframe, the animal should be loaded on to a trailer and taken to the closest qualified veterinarian. The AO will consult with the veterinarian prior to making the decision to euthanize an animal; the veterinarian will perform the euthanasia in a timely and discreet manner. In the event that no qualified veterinarian is available within 2 hours, either on and/or off-site, and the need for euthanasia is obvious, the AO may load and transport the animal to a safe and discreet location and humanely euthanize it in order to prevent further

pain and suffering.

#### **IV. Euthanasia of a Large Number of Animals**

Euthanasia of a large number of animals for reasons related to acts of mercy, injury, disease or safety, should be identified and outlined in advance whenever possible. When field monitoring and pre-gather planning identify an increased likelihood that large numbers of animals may need to be euthanized during a gather, this should be addressed in the gather plan. In an on-range preparation, ORC or ORP facility situation, where a gather is not involved, advance planning should also be completed by the AO whenever possible. Arrangements should be made for a USDA APHIS or other veterinarian experienced with WHB to visit the site and consult with the AO on euthanasia decisions. This consultation must be based on an examination of the animals by the veterinarian. It should include a detailed written evaluation of the conditions, circumstances or history of the situation and the number of animals involved. Where appropriate, this information should be specific for each animal affected. During this planning stage, it is critical that the AO include the WHB state lead, appropriate state office, district office, and field office managers, and any contractors that may be involved.

#### **V. Euthanasia of Animals Unusually Dangerous, Escaped, or Pose a Public Safety Hazard**

Unusually aggressive wild horses and burros can pose an unacceptable risk of injury to personnel when maintained in enclosed spaces where some level of handling is required. In rare cases, animals on the range can also be dangerous to domestic animals and/or people. When a horse or burro is unusually dangerous, it is reasonable to conclude that an average adopter could not humanely care for the animal as required by the regulations (e.g., provide proper transportation, feeding, medical care and handling, 43 CFR 4750.1). The BLM cannot solve the problem by removing unusually dangerous animals from the adoption system and placing them in an ORP facility because this resolution poses significant risk of injury to animals in transport, the BLM personnel, and ORP operators. Similarly, animals that escape from facilities or pastures or are in unauthorized areas and cannot be relocated or captured can pose a public safety hazard on highways or by their interactions with people or domestic animals.

When deciding to euthanize an animal because it is unusually dangerous, the AO, in consultation with a veterinarian or other individuals with expertise in animal care, handling and behavior (as designated by the AO), must determine that the animal poses a significant and unusual danger to people or other animals beyond that normally associated with wild horses and burros. When unable to capture an animal to protect the public the AO must consult with another individual with expertise in animal capture and handling. The AO must determine that all reasonable efforts to relocate or capture the animal(s) have been tried and failed. The AO must document all aspects of the animal's behavior that make it unusually dangerous and/or describe the efforts made to relocate or capture the animal. All documentation must be included in a report, maintained in the appropriate WHB program file, and recorded in the Wild Horse and Burro Program System (WHBPS).

## VI. How to Perform Euthanasia

When necessary, euthanasia will be performed in a dignified and discreet manner that is recognized and approved by the American Veterinary Medical Association (AVMA) in their Guidelines for the Euthanasia of Animals: 2020 Edition. Three methods are authorized for use, as follows:

1. *Injection of a lethal dose of a barbiturate or barbiturate derivative such as sodium pentobarbital solution.*

Only commercially available pentobarbital products will be used for injectable euthanasia of conscious animals. Products will be administered by a veterinarian or technician working under the supervision of a veterinarian as dictated by state or federal regulations. A veterinarian supervising personnel using the euthanasia by injection technique is responsible for training that individual(s) as well as compliance with all applicable state and/or federal regulations regarding the acquisition, storage and disposition of euthanasia products. Consideration must be given for timely and appropriate carcass disposal when animals are euthanized by injection of pentobarbital products. When injectable agents are used, the veterinarian supervising the euthanasia process is responsible for ensuring carcasses are properly disposed of so tissue residues do not threaten wildlife species that may be attracted to and consume blood or carrion from euthanized animals.

2. *Gunshot to the brain of an animal that is calm and still, or humanely restrained.*

A properly placed gunshot to the brain of an animal that is calm and still, or humanely restrained, instantly produces an unconscious state followed quickly by a painless and humane death. This method of euthanizing wild horses and burros requires only minimal handling and restraint; and when performed on the range, drug residues that may poison wildlife are not a concern. Only qualified and experienced persons skilled in the safe handling and use of firearms and trained by a veterinarian will perform the procedure. The optimal placement of a gunshot is from the front of the animal, perpendicular to the skull at a point one inch above the intersection of two imaginary lines drawn like an “X” from the eyes to the base of the ears. Typically, when euthanizing a wild horse or burro in this manner with a handgun, the animal will be approached to within five-to-six feet and the gun will be held within a few inches or up to two-to- three feet from the animal.

The preferred firearm for routine use will be a 22-magnum caliber revolver. A 22 long rifle caliber handgun may also be used as well as other types and calibers of firearms including those typical for law enforcement or self-defense use (9mm, .38, .357, .40, or .45 calibers), if the operator is experienced with the firearm. Carbine rifles in lieu of a handgun in these same calibers can also be effective when used at similar or moderately increased (twenty to thirty feet) distances from those described [above](#) for handguns. The 22 magnum is highly effective, easily controlled and offers a lower risk of ricochet or having the bullet exit the carcass. Only hollow point or other controlled expansion types of bullets should be used to maximize tissue destruction while minimizing the risk

of ricochet or having the bullet exit the carcass. The easiest and safest way to euthanize a wild horse or burro is with the animal standing calmly on a trailer or confined in a small pen, portion of an alleyway or chute and the operator is positioned above the animal with visual and physical access to the animal. Animals that may be agitated, fractious or will not stand calmly may need to be placed in a chute or tied down for restraint; and this may be preferable for safety and reliability. Euthanasia should not be attempted when restraint is not adequate or the animal is not standing quietly. Animals moving freely in a large open pen are generally not adequately restrained and euthanasia should not be attempted in this circumstance.

3. *Penetrating captive bolt shot to the brain of an animal that is humanely and adequately and restrained.*

When properly applied by trained and experienced personnel, the application of a penetrating captive bolt gun to a calm, well-restrained horse or burro can be a humane and an effective means of euthanasia. Penetrating captive bolts use compressed air or a gunpowder blank to rapidly drive a metal rod through the skull into the brain. This impact, similar to a gunshot, immediately renders the animal unconscious so the animal is no longer aware of its surroundings and does not feel pain.

Unless recumbent and unable to move, animals must be restrained to minimize head movement. This restraint is typically achieved by use of a padded hydraulic squeeze chute or with a halter in a manual squeeze chute. Chemical immobilization and/or anesthesia may be used for restraint prior to application of the captive bolt as long as the captive bolt is applied immediately after the animal is adequately and safely restrained. Captive bolts are applied to the same target area described [above](#) for euthanasia by gunshot. Only the more powerful captive bolt guns with a longer bolt or specifically designed for euthanasia will be used.

Only persons authorized by BLM and specifically trained by a veterinarian in the use of a captive bolt will use this technique. The procedure will only be applied under the supervision of a veterinarian. The supervising veterinarian is not required to be on site every time a captive bolt is applied, but this supervision will include monitoring by the veterinarian to ensure euthanasia is performed humanely. Captive bolt equipment will be cleaned and maintained according to manufacturer guidelines. A record of maintenance will be kept on site with the equipment and reviewed by the supervising veterinarian on a regular basis.

Following euthanasia, death must be verified prior to moving the carcass for disposal. Properly shot or stunned animals should immediately collapse with no effort to then stand or roll into a sternal position. A blank stare straight ahead with complete dilation of the pupils, no movement of the eyes and the absence of a corneal reflex are the best indicators that death has occurred. The animal should also be examined for cessation of vital signs including pulse and rhythmic breathing. Unconscious animals should be handled and moved as little as possible until death is confirmed. Carcass disposal should be in accordance with state and local requirements, where applicable.

As recognized by the AVMA, circumstances exist with free-roaming wild animals where capture and chemical or physical restraint may not be practical prior to euthanasia. These situations may only serve to prolong or exacerbate the distress of an injured or suffering animal. Under these conditions and when an animal cannot be approached within a few feet, humane killing may be necessary to end the animal's suffering as quickly and humanely as possible. In these instances, methods typically used when hunting big-game animals of North America (e.g., elk, moose) in an ethical and responsible manner will be employed. It is not appropriate in these instances to use smaller caliber (e.g., 5.56 mm) rifles or other weapons targeted at the brain from longer distances. High-powered rifles targeted at the heart/lung and shoulder areas of an animal standing still and at typical hunting distances will be used in this circumstance.

For familiarity among operators, the recommended firearm is a bolt-action scoped rifle in a 30-06 caliber. Other firearm types and calibers with similar killing power typical for hunting large North American big-game animals (7mm magnum, .270, .308, .338 Win Mag, etc.) may be used if they are familiar to the operator. However, a .30-06 bolt-action scoped rifle sighted in for 200 yards offers a predictable and ethical means of quickly killing a large animal in the most humane manner possible under these circumstances. Only hollow point or other controlled expansion types of bullets should be used to maximize tissue destruction and minimize the risk of ricochet. It is not appropriate to substitute the use of a high-powered rifle from a distance for euthanasia using a gunshot to the brain when an animal can be restrained or in situations, such as, gathers, or temporary or ORC facilities when restraint and use of a more conventional euthanasia technique can be applied.

As noted by the AVMA Panel on Euthanasia, the psychological response experienced by people when observing euthanasia or death in any form is an emotional one dependent on the situation and the background of the observer. Grief and distress over the loss of life are the most common reactions. Expert technique and maintaining a calm and professional atmosphere during the procedure can help minimize these reactions in the persons who must perform the procedures as well as co-workers or bystanders. For safety as well as discretion, only mission-critical persons should be nearby when euthanasia is performed. The BLM employees and contractors involved in or observing the process should behave in a dignified and discreet manner that avoids public spectacle. While these considerations should not outweigh the primary responsibility of using the most rapid and painless euthanasia method possible under the circumstances, animals should be euthanized, and carcasses moved away from public view whenever possible; animals may need to be moved off-site prior to euthanasia. In some circumstances, the use of tarps or vehicles as a visual screen may also be appropriate.

As noted by the AVMA, circumstances may arise that are not clearly covered by any policy or set of guidelines for euthanasia. Whenever such situations arise, a veterinarian experienced with wild horses and burros should be consulted for their professional judgment of acceptable techniques for euthanasia. The animal's species-specific physiologic and behavioral characteristics, size, approachability and degree of suffering will be taken into consideration. In all situations, a method of euthanasia that minimizes suffering and distress of the animal will be chosen.



A. Documentation and Reporting of Euthanized Animals

A record of an animal's death by euthanasia on the range, during a gather, during transport, at facilities or during an adoption event, will be maintained by the BLM within WHBPS. The death record will identify the animal by using a description and/or freeze mark if the animal is marked, the date of the death, where the animal died and the reason(s) that euthanasia was performed. If the euthanasia was performed in the field or during a gather operation, then it is recommended that a copy of the death record also be maintained in the appropriate HMA case file.

When euthanasia is performed at a gather, the lead COR or Incident Commander (IC), in addition to the process detailed [above](#), will report the actions taken during gather operations in the comment section of the Daily Gather Overview, and in the Final Gather Data Report. Describing these mortalities in the gather records using the terms and definitions used in WHBPS for recording the Cause and Manner of Death along with Comments as appropriate will facilitate consistent reporting.

B. Planning and Communication

The WHB specialist or the BLM employee responsible for an HMA, gather, facility or public event is responsible for having a euthanasia plan of action in place at all times where there are federally protected wild horses and burros. The plan will address practical considerations such as (1) who will have designated authority to make decisions regarding euthanasia; (2) who will perform the procedure; (3) what method(s) of euthanasia will be used; and (4) how carcass disposal will be addressed.

When euthanasia is recommended for a large number of animals, a communications plan for internal and external contacts (including early alerts to state and Headquarters offices) should be developed in advance, if possible, and implemented concurrently while addressing the situation at-hand. The communications plan should address the need for the action, as well as the appropriate messages to the public and the media, including why animals are being euthanized and how the action is consistent with the BLM's responsibilities and policy.

All operation plans for gathers, adoptions and public events where it is possible that animals may need to be euthanized will include contingency plans that address the capability for performing the function. Each state will develop and implement a training and certification plan for those employees that will be tasked with euthanizing animals. A veterinarian will be present or on-call for all gathers, adoptions, and public events.

DATE: \_\_\_\_\_

NAME: \_\_\_\_\_

ANIMAL ID: \_\_\_\_\_

DESCRIPTION: \_\_\_\_\_

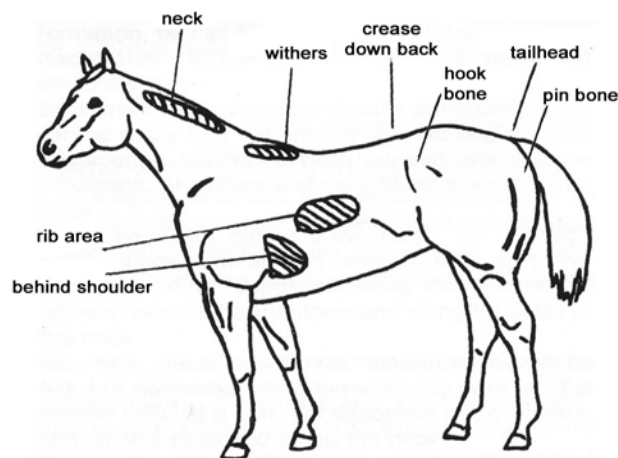
☐ VISUAL or ☐ HANDS-ON ASSESSMENT

COMMENTS: \_\_\_\_\_

OVERALL BODY CONDITION SCORE: \_\_\_\_\_ ÷ 6 = \_\_\_\_\_

sum total overall score

(circle descriptions for each area of the body then average together)



modified from Henneke et al. EVJ 1983;15:371-372

Condition	Neck	Withers	Shoulder	Ribs	Back	Tailhead Area
<b>1</b> <b>Poor</b> <i>(extremely emaciated)</i>	Bone structure easily noticeable	Bone structure easily noticeable	Bone structure easily noticeable	Ribs projecting prominently	Spinous processes projecting prominently	Tailhead, pinbones, and hook bones projecting prominently
No fatty tissue can be felt						
<b>2</b> <b>Very Thin</b> <i>(emaciated)</i>	Bone structure faintly discernible	Bone structure faintly discernible	Bone structure faintly discernible	Ribs prominent	Slight fat covering over base of spinous processes. Transverse processes of lumbar vertebrae feel rounded. Spinous processes are prominent	Tailhead prominent Pin bones prominent Hook bones prominent
<b>3</b> <b>Thin</b>	Neck accentuated	Withers accentuated	Shoulder accentuated	Slight fat cover over ribs. Ribs easily discernible	Fat buildup halfway on spinous processes, but easily discernible. Transverse processes cannot be felt	Tailhead prominent but individual vertebrae cannot be visually identified. Hook bones appear rounded, but are still easily discernible. Pin bones not distinguishable
<b>4</b> <b>Moderately Thin</b>	Neck not obviously thin	Withers not obviously thin	Shoulder not obviously thin	Faint outline of ribs discernible	Negative crease (peaked appearance) along back	Prominence depends on conformation. Fat can be felt. Hook bones not discernible
<b>5</b> <b>Moderate</b>	Neck blends smoothly into body	Withers rounded over spinous processes	Shoulder blends smoothly into body	Ribs cannot be visually distinguished, but can be easily felt	Back is level	Fat around tailhead beginning to feel spongy
<b>6</b> <b>Moderately Fleishy</b>	Fat beginning to be deposited	Fat beginning to be deposited	Fat beginning to be deposited behind shoulder	Fat over ribs feels spongy	May have a slight positive crease (a groove) down back	Fat around tailhead feels soft
<b>7</b> <b>Fleishy</b>	Fat deposited along neck	Fat deposited along withers	Fat deposited behind shoulder	Individual ribs can be felt, but noticeable fat filling between ribs	May have a positive crease down the back	Fat around tailhead is soft
<b>8</b> <b>Fat</b>	Noticeable thickening of neck	Area along withers filled with fat	Area behind shoulder filled with fat	Difficult to feel ribs	Positive crease down back	Fat around tailhead very soft
<b>9</b> <b>Extremely Fat</b>	Bulging fat	Bulging fat	Bulging fat	Patchy fat appearing over ribs	Obvious crease down back Flank filled with fat	Bulging fat around tailhead <small>(prepared by A Kane USDA APHIS 11/21/17)</small>



1. Authorization

- a. Upon determining that there is a legitimate need for a non-law enforcement, BLM employee to possess, carry, or use a firearm, and in accordance with the process prescribed by the state firearms manager, the supervisor must submit a request to obtain authorization from the state director. This authorization allows the supervisor's employee to complete firearms training and carry and use firearms. In addition, field office manager endorsement is required as part of the request to the state director.
- b. A background check must be conducted to determine whether an employee is prohibited from possessing, carrying, or using a firearm by court order; as a condition of sentencing, probation, or parole or pretrial diversion agreement; because of conviction of a misdemeanor crime of domestic violence; because of a felony crime; or because of a history of mental illness that presents a risk of injury to the employee or others. After the initial background check, rechecks must be performed a minimum of every 4 years.
- c. After successful completion of a background check, the employee may attend firearms training.
- d. The state firearms manager must prepare a certificate of firearms authorization for the employee, verify that the employee has passed a background check and successfully completed training and live fire range qualification requirements, and request the state director's signature on the certificate of firearms authorization.
- e. The certificate of firearms authorization must not cover more than a 12-month period and must include the following information:
  - 1) Employee's name,
  - 2) Duties requiring use of firearms,
  - 3) Geographic area where the authorization is valid,
  - 4) Purpose of firearm use,
  - 5) Issuance and expiration date,
  - 6) Specific type of firearm(s) the employee is authorized to carry,
  - 7) Serial number(s) of personal firearm(s) the employee is authorized to carry,
  - 8) State director's name, and
  - 9) State director's signature and date.
- f. A certificate of firearms authorization expires upon the occurrence of any of the following circumstances:
  - 1) At the end of the calendar year in which it was issued or the completion of the project, whichever occurs first;
  - 2) When there is a change of duty station, status, or transfer;
  - 3) Upon failure to demonstrate shooting proficiency or strict adherence to firearms safety, transport, or security requirements;

- 4) A conviction for domestic violence or the subject of a domestic violence protection order; or
- 5) When rescinded for any reason by the employee's supervisor or manager.

2. Training

- a. Non-law enforcement employees who possess, carry, or use a firearm in the performance of their official duties must successfully complete classroom training in the following categories, at a minimum:
  - 1) General and range firearms safety;
  - 2) Laws, rules, regulations, and policies;
  - 3) Employee and supervisory responsibilities;
  - 4) Incident reporting;
  - 5) Firearms care and maintenance; and
  - 6) Firearms skills.
- b. Live Fire Range Qualification. This portion of the firearms training course must take place on the firing range under the control of an authorized instructor. The target for animal protection training must be 8 ½ by 11 inches in size and must be placed a distance of 15 yards from the firing line. Proficiency is achieved when 70 percent of the shots are on the target and when all sequences of shots are fired within the allowable time of 25 seconds. Each sequence must be performed twice to demonstrate proficiency. The shooter must also exhibit proper safe handling of the firearm(s).
- c. Pump and Semi-Automatic Shotguns. This portion of the training course includes two sequences of live range fire consisting of magazine capacity for the shotgun, plus one (i.e., Remington 870, four rounds in magazine, plus one).
  - 1) The shooter must start with a full magazine and empty chamber. The weapon must have the action closed and the safety on.
  - 2) On the command to fire, the shooter is required to fire the rounds in the magazine, then reload and fire one additional round.
  - 3) Upon completion, the shooter must open the action and make sure the safety is on.
  - 4) The time limit is 25 seconds, and this sequence is repeated.
- d. Double-Barrel Shotguns. This portion of the training course includes two sequences of live range fire consisting of four rounds per sequence.
  - 1) The shooter must start with a full magazine and empty chamber. The weapon must have the action closed and the safety on.
  - 2) On the command to fire, the shooter is required to fire the rounds in the magazine, then reload and fire one additional round.
  - 3) Upon completion, the shooter must open the action and make sure the safety is on.

- 4) The time limit is 25 seconds, and this sequence is repeated.
- e. Rifles. This portion of the training course includes two sequences of live range fire consisting of magazine capacity for the rifle, plus one round (i.e., a bolt action rifle with magazine capacity of three rounds; the course is four rounds for each sequence).
  - 1) The shooter must start with the magazine fully loaded. The action must be closed on an empty chamber and the safety on.
  - 2) On command to fire, the shooter must fire the rounds in the magazine, then reload and fire one additional round.
  - 3) Upon completion, the shooter must open the action and make sure the safety is on.
  - 4) The time limit is 25 seconds, and this sequence is repeated.
- f. Handguns. This portion of the training course includes two sequences of live range fire, each consisting of cylinder/magazine capacity for the handgun.
  - 1) The shooter must start with a fully loaded handgun.
  - 2) On the command to fire, the shooter must fire all rounds contained in the cylinder/magazine.
  - 3) Upon completion, the shooter must open the cylinder/slide and make sure the handgun is unloaded.
  - 4) The time limit is 25 seconds, and this sequence is repeated.
- g. Refresher Training. Employees must successfully complete refresher classroom training every 2 years and successfully complete live fire range qualification on an annual basis. Certificates of firearms authorization must not be renewed for employees that cannot successfully complete their refresher training and perform their firearms qualification.
- h. Firearms instructors must refuse to qualify any student who demonstrates a lack of basic situational awareness or firearms safety awareness or a solid understanding of the mechanical operation of firearms, regardless of that employee's successful completion of the prescribed live fire range qualification.
- i. Wild Animal Behavior Training. A basic understanding of animal behavior is an essential component of effective self-defense against large predators. All firearms instruction that is conducted to prepare employees to defend themselves against wild animal attacks must include the following:
  - 1) A minimum of 2 hours of training in the behaviors and characteristics of the applicable dangerous animal, taught by a knowledgeable instructor.
  - 2) The use of nonlethal rounds and capsaicin-based deterrent spray for deterring aggressive animals.
  - 3) The ethical implications and legal requirements associated with killing a game animal in defense of life and property.

- 4) Employees choosing to supplement or replace the use of firearms with pepper- based deterrent spray for protection against dangerous wild animals must complete a training program in the use of the spray, taught by a trained and knowledgeable instructor.
- j. BLM firearms instruction must be of professional caliber. States are encouraged to promote and fund advanced instructor training relevant to the type(s) of firearms and conditions to which employee(s) will be exposed. Firearms instructors and firearms training coordinators must have significant experience in the use of firearms and must meet one or more of the following requirements prior to independently instructing employees:
  - 1) A Federal Law Enforcement Training Center graduate.
  - 2) A National Rifle Association firearms instructor.
  - 3) Minimum 16 hours of basic firearms instructor training.
  - 4) One block of discipline-specific firearms instructor training, as applicable:
    - a) Shotgun.
    - b) Rifle.
    - c) Handgun.

# **Exhibit 11**

## **Comprehensive Animal Welfare Program Team Assessment Report 2022 Triple B Gather**





## Comprehensive Animal Welfare Program Team Assessment Report

July 22, 2022

**Gather Name:** FY2022 Triple B Complex Wild Horse Gather

**State:** Nevada

**District/Field Office:** Ely District Office, Bristlecone Field Office/Elko District Office, Wells Field Office

**Incident Commander:** Ben Noyes

**Lead COR:** Tyler Reese

**Contractor:** Cattoor Livestock Roundup, Inc.

**Gather Method:** Helicopter Dive Trapping

**Gather Reason:** Excess animals, outside HMA, lack of water, and private land issues

**CAWP Assessment Team Members:** Jerrie Bertola, Ryan Bradshaw, and Preston Rushing

**Assessment Dates:** July 18-20, 2022

**Total Number of CAWP Gather Standards:** 189

**Number of Applicable CAWP Gather Standards:** 131

**Compliance with Applicable CAWP Standards:** 126

**Compliance with Applicable CAWP Standards:** 126/131 = 96%

**General Notes and Comments from the CAWP Team:** Coordination and access to this gather was excellent. Both BLM and the contractor were willing to ask and answer questions. The contractor tried to meet the standards for the loading chute; however, the chute still fell short of the standards. Coordination and communication observed with the onsite veterinarian was excellent. The BLM onsite personnel were observed checking ambient temperatures multiple times at the trap site. The BLM-provided chute made it difficult to determine the sexes of animals. At one point, the chute encountered difficulties when the generator stopped working. A "fly" chute works better in remote locations.

### **Requirements of Permanent Instruction Memorandum (PIM) 2021-002, Wild Horse and Burro Comprehensive Animal Welfare Program (CAWP):**

- All state, district, and field offices will continue to comply with the WHB CAWP policy within their jurisdictions at all times. This includes the CAWP Standards for Wild Horse and Burro Gathers.
- All personnel, including contractor and partners involved in the care, handling, and transportation of wild horses and burros at wild horse and burro gathers are required to complete training annually.

**Conditions found to be in non-compliance with the CAWP Standards for Wild Horse and Burro Off-Range Corrals:**

**Trap Site Animals**

**Standard**

- III.B.3.a** Dependent foals or weak/debilitated animals must be separated from other WH&Bs at the trap site to avoid injuries during transportation to the temporary holding facility. Separation of dependent foals from mares must not exceed four hours unless the Lead COR/COR/PI authorizes a longer time or a decision is made to wean the foals. (major)

**Non-compliance:** While dependent foals separated at the trap site were reunited within four hours, the foals were not always kept separate when shipping from the trap site to the temporary holding corral.

**Temporary Holding Corral**

**Standard**

- I.A.12** The design of pens at the trap site and temporary holding facility should be constructed with rounded corners. (minor)

**Non-Compliance:** The temporary holding facility was not designed to minimize corners and sharp angles. The gates placed in the big pens on the outside part of the corral created 90-degree angles when closed. When left open, there were places for wild horses to hit.

**Standard**

- III.C.4** Horses not involved with gather operations should remain at least 300 yards from WH&Bs, saddle horses, and pilot horses being actively used on a gather. (minor)

**Non-Compliance:** Privately owned horses not involved in gather operations shared a fence line with the saddle and pilot horses and were less than 300 yards from the wild horses or those involved in gather operations.

**Facility Design: Loading and Unloading Areas**

**Standard**

- I.B.2** The side panels of the loading chute must be a minimum of 6 feet high and fully covered with materials such as plywood or metal without holes that may cause injury. (major)

**Non-Compliance:** The loading chute was not covered a minimum of 6 feet high with materials such as plywood or metal.

**Transport Animals: Loading Procedures**  
**Standard**

**V.C.2** WH&Bs should be sorted prior to transport to ensure compatibility and minimize aggressive behavior that may cause injury. (minor)

**Non-compliance:** While animals were sorted at the temporary holding corral, sexes were mixed during transportation. Mares and foals were shipped from temporary holding corrals to off-range corral in the same compartment.

**Table 1: Overall Summary Rating**

CAWP Standards and Policy Requirements	Compliant	Partially Compliant	Non-Compliant	N/A
CAWP Trained BLM Staff	✓			
CAWP Contract Trained Staff	✓			
Required Documentation	✓			
Trap Site Facility	✓			
Trap Site Animals		✓		
Temporary Holding Facility		✓		
Temporary Holding Animals	✓			
Transport Design and Facilities		✓		
Transport Animals		✓		
<i>Compliant – all the activities of the section were compliant with the standards or policy requirements.</i> <i>Partially compliant – one or more activities of the section were non-compliant with the standards or policy requirements.</i> <i>Non-Compliant – all activities of the section were non-compliant with the standards or policy requirements.</i> <i>N/A –activities were not observed during the assessment.</i>				

Rating scale for CAWP Assessments: 96-100% - Excellent, 86-95% - Good, 70-85% - Complies, and 0-69% - Failure to Comply.

**Final CAWP Assessment Rating:** Excellent. 96% of applicable CAWP standards were met.